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The impact of body image self-discrepancy on body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions in online apparel shopping

Hyejeong Kim
Iowa State University

The impact of body image self-discrepancy on body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions in online apparel shopping

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Hyejeong Kim

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Program of Study Committee:
Mary Lynn Damhorst, Major Professor
Elena Karpova
Linda S. Niehm
Alicia Cast
Mack Shelley

Iowa State University

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TABLE OF CONTENTS

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ABSTRACT

The purposes of this study were: (1) to explore the domain of concerns with fit and size of garments using a qualitative technique; (2) to develop scales, measuring them in the offline and online shopping contexts; and (3) to examine the relationships among body image self-discrepancy, body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions based on the self-discrepancy and cognitive dissonance theories.

In Phase 1, the domain of concerns with fit and size of garments was explored using a focus group interview technique. Results of this phase revealed seven distinct, interrelated themes, encompassing both offline and online shopping.

In Phase 2, based on the findings from Phase 1, two concerns with fit and size of garment scales were developed for offline and online shopping. As a result of exploratory and confirmatory factor analyses, five dimensions, including 22 items, were identified for each of the offline and online shopping contexts. It appeared that both offline and online shopping contexts generated similar concerns with fit and size of garments to some extent, but at the same time, the concerns with fit and size in the two different shopping formats were explained by somewhat different dimensions.

In Phase 3, a hypothesized model, examining the relationships among body image self-discrepancy, body dissatisfaction, enduring and situational fashion involvement, concerns with fit and size of garments, and loyalty intentions, was tested using a SEM technique. The results showed that body image self-discrepancy was positively related to body dissatisfaction. Body dissatisfaction was positively related to enduring and situational

fashion involvement. Body dissatisfaction was positively associated with five concerns with fit and size of garment dimensions. However, the relationships between enduring and situational fashion involvement and five concerns with fit and size of garment dimensions were not significant. Finally, concerns with overall appearance and concerns with unavailability of size did not influence loyalty intentions; whereas, concerns with imagining fit/size in online shopping negatively affected loyalty intentions.

CHAPTER 1. INTRODUCTION

Body image is the mental representation that an individual has of his or her own body and affective response to it (Fisher, 1986). Cultural standards for the ideal image have generated discrepancies between the actual and ideal self because unrealistic standards are often used as criteria for evaluating one's body (Jung, Lennon, & Rudd, 2001). While the cultural standard of the ideal body has become thinner, the average size of women has become bigger in the U.S. (Kher, Donnelly, DeQuine, Hylton, Liston, McDowell, Szczesny, & Tsiantar, 2003). For instance, one-half of all U.S. women wear size 14 or larger these days; whereas, the average size was 8 in 1985 (Kher et al., 2003; "Media and eating disorders," n.d.). Because cultural standards of the ideal body are inconsistent with an increase in average weight and size (Garner, Garfinkel, Schwartz, & Thompson, 1980), many women suffer from body image self-discrepancies between their perceived actual and internalized ideal body images (Jung, Lennon, & Rudd, 2001), associated with negative emotions such as shame and depression (Higgins, 1987) as well as body dissatisfaction (Anton, Perri, & Riley, 2000; Cash & Green, 1986; Snyder, 1997). In fact, a report shows that four out of five U.S. women are dissatisfied with their appearance ("Media and eating disorders," n.d.).

Tate and Shafer (1982) argue that the U.S. fashion industry reflects the social message of the ideal body. To maximize a desirable presentation, fashion industries display their products on ideal figures (Tate & Shafer, 1982) (e.g., mannequins with ideal body proportions and tall and thin fashion models). In the U.S.A, the required size for a female fashion model is 5' 9" to 5'10" height and 117 pounds, wearing size 2 to 4, but size 0 is preferred ("Modeling Advice," n.d), while the average U.S. women is 5'4" and 140 pounds

("Media and Eating Disorders," n.d.). Many apparel retailers' websites use size 2 or 4 models, even though the range of available sizes is 0 through 20 (e.g., Gap). McVey (1984) found that when fashionable garments fit poorly on consumers' bodies, they feel that something is wrong with their own bodies that are far from the ideal. Therefore, consumers, whose sizes are bigger than the model's size, considered as the ideal size for women, may feel a higher degree of discrepancy between their body image and the ideal body.

Apparel has been one of the fastest growing (Shop.org, 2007a) and the most popular categories, except travel goods and products, in online shopping (Corcoran, 2007); apparel, of course, involves the body (Rush, 2004). Due to the inability to try on a garment during online shopping, online apparel retailers have displayed their products, using human models to help shoppers imagine the fit of garments on their bodies. Research has shown that consumers prefer a realistic human model over a mannequin or laid-out flat display to see the silhouette of the garment and how the garment fits the body (Then & DeLong, 1999). However, displaying apparel on ideal models may increase consumers' body image self-discrepancies as well as body dissatisfaction. Consumers may compare themselves to the website ideal models, similar to the findings of studies of other types of mass media (e.g., Bessenoff, 2006; Heinberg & Thompson, 1995; Lavine, Sweeney, & Wagner, 1999).

Fit and size of garment are one of the important criteria in apparel shopping (Eckman, Damhorst, & Kadolph, 1990; Hsu & Burns, 2002). Particularly, in online apparel shopping the body absent environment may be a serious problem because the consumption experience of apparel is directly related to body-related information such as fit or softness. How apparel interacts with the consumer's body is an important factor in making a purchase decision (Rosa, Garbarino, & Malter, 2006). The lack of experiential information (inability to try on

and assess fit) increases risk and is the main deterrent of online purchasing for apparel (Internet Retailer, 2005b; Retail Forward, 2001). According to Beck (2003), in 1999, the biggest reasons consumers did not buy apparel online were concern with fit and accurate sizing, reported by 28 percent of the respondents. Therefore, with increasing online sales, the fit of garments has serious implications for a fashion industry because ill-fitting garments are directly related to product return rates. In 2004, U.S. customers returned an estimated 30 percent of apparel purchases made online, which amounts to a $6 billion annual problem for apparel e-retailers. On average, these return costs account for 27 percent of gross sales, including the costs e-retailers spend for all shipping costs to retain consumers' loyalty ("Sizing Up Modern Bodies," 2008).

In order to decrease consumers' perceived risks caused by the inability to try on the garment, e-retailers have implemented various innovative technologies, particularly visual devices (e.g., 3-D images, virtual models, digital images, and zooming technology). However, in spite of substantial financial investment of e-retailers, the effect of these technologies on consumers' online shopping experiences is uncertain. For instance, Lands' End reported that the use of My Virtual Model (MVM) facilitates purchase decisions and influences average order value ("Lands' End Improves", 2001). However, Lane Bryant, the nation's largest plus-size retailer, reported that they removed the MVM technology from their website after implementing it for a few years because their customers no longer use it (Lane Bryant, 2005). Thus, it is critical to understand consumers' concerns with fit and size of garments and how information presented on the website, including visual information such as a use of models, influences consumers' attitudes about their bodies, and concerns with fit and size of garments as well as behavioral intentions in online apparel shopping.

Problem Statement

The present study specifically focused on two parts: (1) exploring the domain of concerns with fit and size of garments and developing a measurement scale and (2) testing a model, including such variables as body image self-discrepancy, body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions in the context of online shopping. As discussed, concerns or risks with fit and size of garments are the most critical reasons that consumers are reluctant to buy apparel online (Beck, 2003). However, in spite of an awareness of consumers' concerns with fit and size of garments, this area has not been widely explored.

LaBat and DeLong (1990) examined the relationship between body cathexis and satisfaction with fit of apparel. In their study, satisfaction with fit of apparel was measured by the degree to which consumers are satisfied with various parts of their bodies (e.g., thigh, hip, waist, etc.). Rosa et al. (2006) investigated the relationship between body esteem and overall concern with fit in the online apparel shopping context. However, in their study, overall concern with fit was measured by four items, such as "does it give the right impression?" "does it feel good?" "does it fit?" and "does it match my style?" which might not fully capture the domain of concerns with fit and size of garments, particularly in online apparel shopping. Therefore, it is important to explore the area of concerns with fit and size of garments and develop scales to quantitatively measure them in various apparel shopping contexts.

Body image self-discrepancy and its effects have been widely studied in various contexts, including TV ads (e.g., Lavine et al., 1999) and advertisements (Bessenoff, 2006). Research has consistently supported that the discrepancy between actual body size and thin

ideal models in the media influences dissatisfaction with the self which manifests as shame or depression (Higgins, 1987) and body dissatisfaction (e.g., Cash & Green, 1986; Grogan, William, & Corner, 1996; Heinberg & Thompson, 1995; Posavac, Posavac, & Posavac, 1998). With increasing use of the Internet as a source of information, commercial websites work as an advertising medium (Joines, Scherer, & Scheufele, 2003; Joint & Waterhouse, 2003) that informs consumers about the product and encourages them to have positive attitudes and behaviors toward the product (Singh & Dalal, 1999). Therefore, it is plausible to assume that exposure to ideal models in the online shopping environment may also cause consumers' body image self-discrepancies when comparing themselves to the ideal models. However, no study has investigated how consumer's body image self-discrepancy in an online shopping environment affects body dissatisfaction, concerns with fit and size of garments, and purchase or shopping intentions.

Therefore, the purposes of the present study were threefold: (1) to explore the area of concerns with fit and size of garments using a qualitative technique—the focus group interview; (2) develop scales, measuring concerns with fit and sizing in the offline and online shopping contexts; and (3) to examine the relationships among body image self-discrepancy, body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions.

CHAPTER 2. REVIEW OF LITERATURE

Theoretical Framework

In the present study, self-discrepancy (Higgins, 1987) and cognitive dissonance (Festinger, 1957) theories served as theoretical frameworks. Self-discrepancy theory was used to explain the mechanism between body dissatisfaction and consumers' perceived discrepancies that may arise when comparing one's actual body image and that of ideal models in the websites. Cognitive dissonance theory was used to describe how consumer's body image self-discrepancy and body dissatisfaction affect cognitive information processing such as concerns with fit and size of garments. Based on the theory, cognitive dissonance, which results from self/model discrepancy, may ignite feelings of risk and concern, and ultimately influences loyalty intentions in the online shopping context.

Theory of Self-Discrepancy

Self-discrepancy theory (Higgins, 1987) posits that discrepancies in individuals' beliefs about themselves cause vulnerabilities in their motivations and specific emotions. The theory hypothesizes two cognitive dimensions—domains of the self and standpoints of the self (Higgins, 1987). The domains of the self consist of the actual self, ideal self, and ought self. The actual self refers to an individual's presentation of the attributes that the person or another person thinks he or she actually possesses. The ideal self involves the individual's presentation of the attributes that the person or another person would like him or her, ideally, to possess and includes the representation of the person's hopes, aspirations, or wishes for himself or herself. The ought self refers to an individual's representation of the attributes that the person or another believes he or she should or ought possess, and indicates the

representation of the individual's sense of duty, obligations, or responsibility. When the actual self is discrepant from the ideal self, an ideal discrepancy occurs. For example, one may think that his or her actual body is big, but the person would ideally like to be thin. Ideal discrepancies are the lack of a desired positive outcome (Higgins, Bond, Klein, & Strauman, 1986). On the other hand, when the actual self is discrepant from the ought self, an ought discrepancy takes place (Higgins et al., 1986). For instance, one may think that his or her actual body is big, but his or her significant others think it should be thinner.

Self-discrepancy theory (see Higgins, 1987) also suggests the distinction between two perspectives on the self—the individual's own personal standpoint and the standpoint of some significant other. Mixing each of the domains of the self with different standpoints of the self produces six basic types of self-state representations (i.e., actual/own, actual/other, ideal/own, ideal/other, ought/own, and ought/other) and different combinations of self-states constitute different self domains. For example, the self-statement of actual/own and actual/other comprises self-concept, and the other remaining self states constitute self-guides. In addition, low self-esteem involves actual self (actual/own and actual/other) and ideal self (ideal/own and ideal/other). Higgins (1987) proposes that an individual's inconsistent beliefs or disparities with respect to the different self-states results in different self-discrepancies and each of these discrepancies is related to particular negative emotional and motivational problems. For instance, when an individual possesses an "actual/own vs. ideal/own" discrepancy (i.e., the individual's actual attributes from the person's standpoint are not consistent with the ideal states that the person hopes or wishes to achieve), the person may feel negative dejection-related emotions, such as disappointment and dissatisfaction. In addition, when an individual holds an "actual/own vs. ideal/other" discrepancy, the person

may feel negative dejection-related emotions such as shame, embarrassment, or feelings of downcast. Researchers have found that exposure to ideal images is associated with body image self-discrepancy in various contexts, such as TV ads (e.g., Lavine et al., 1999) and advertisements (Bessenoff, 2006). Because online shopping websites are used as an important tool for advertisement (Singh & Dalal, 1999), exposure to ideal models in the online shopping environment may also cause consumers' body image self-discrepancy and body dissatisfaction as they compare themselves to the ideal models.

Theory of Cognitive Dissonance

Festinger (1957) proposed three possible relations that may exist between any two cognitions (here, cognitions means any knowledge, opinion, or beliefs about the environment, about oneself, or about one's behavior). These three relations include "irrelevance" (the existence of uninformative relations among cognitions), "consonance" (the existence of fitting relations among cognitions), and "dissonance" (the existence of nonfitting relations among cognitions). Festinger's theory of cognitive dissonance suggests that when an individual confronts new events or information, which is inconsistent with his or her existing cognition, a state of "dissonance" occurs. The presence of dissonance in an individual's cognitions results in psychological discomfort, and thus, the individual strives to reduce dissonance to achieve consonance.

The presence of dissonance raises pressures to reduce or eliminate the dissonance. In order to avoid the rise of dissonance, individuals may selectively search for information, supporting the existing cognitions. However, when an individual cannot avoid exposure to conflicting information (i.e., a situation of cognitive dissonance), the person may become engaged in some psychological processes to reduce the state of dissonance (Festinger, 1957).

One of these processes is altering the relative importance of the cognitive elements involved (Fishbein & Ajzen, 1981) and may include two processes: (a) trivialization and (b) bolstering. Trivialization refers to devaluing the importance given to the dissonant elements (Simon, Greenberg, & Brehm, 1995) and bolstering refers to placing more importance on the elements consistent with existing cognitions (Abelson, 1959).

For the present study, the theory of cognitive dissonance provides a theoretical explanation for the effect of body image-self discrepancy and body dissatisfaction on consumers' fashion involvement and concerns with fit and size of garments. When a consumer has a strong, positive attitude toward his or her body and the cognition about his or her actual body is consistent with that of the ideal model on the website, the consistency between the consumer's existing cognition and the new product information presented on the ideal model will result in cognitive consonance. Therefore, the new information (e.g., fit and size of the garment on the ideal model) may be likely to be incorporated into the existing attitude structure (e.g., one's actual body image and expected fit of the garment) in a biased manner so that consonance within the consumer's cognitions about the fit and size of the garment are maintained; therefore, the consumer perceives a lower degree of concerns with fit and size of garments even though the person cannot try on the garment. On the other hand, when a consumer's cognition about his or her body is inconsistent with that of the ideal model on the website, a state of cognitive dissonance may occur, due to the disparity between the consumer's cognition about his or her body and that of the ideal model or the expected fit and size of the garment on their own body and that of the garment on the ideal model. The state of dissonance may create psychological discomfort, such as body dissatisfaction. According to the theory, when an individual is exposed to conflicting information, a state of

dissonance, the person strives to reduce dissonance by emphasizing the elements consistent with existing cognitions (Abelson, 1959). Therefore, when an individual feels body dissatisfaction due to the discrepancy between actual/ideal body images, the person may be highly involved in fashion and try to use apparel to emphasize the positive parts of his or her body and enhance overall appearance.

Body Image

Body image is the mental picture that we have of our bodies (Fallon, 1990) and consists of perceptual and attitudinal dimensions. The perceptual dimension refers to how individuals perceive their bodies in terms of size, shape, weight, feature, attractiveness, movement, and performance. The attitudinal dimension encompasses how individuals feel about those attributes of their bodies (i.e., self-appraisal and affect) and how these feelings direct behaviors (Rudd & Lennon, 2000, 2001). Therefore, body image is not just a physical construct, but a mental image that encompasses a multifaceted construct such as cognitions, feelings, and behaviors (Cash & Pryzinsky, 1990). Research has found that body image is associated with the consumption of fashion products, such as cosmetics and apparel (e.g., Cash & Cash, 1982; Solomon & Douglas, 1985) and influences individual's perceptions of how the clothed body is viewed by the public (Rudd & Lennon, 2001).

Body image is culturally bounded in what is considered as attractive. Therefore, culture plays an important role for individuals in developing (Fallon, 1990; Grogan, 1999) and evaluating their body images (Tseelon, 1995). These evaluations are related to self-esteem, attitudes, and feelings toward their bodies (Rudd & Lennon, 1994).

Body Image Self-Discrepancy

Discrepancies between one's body image and cultural standards result in negative emotional states such as dissatisfaction and fear (Higgins, 1987). According to social comparison theory (Festinger, 1954), individuals continuously compare themselves to others and these comparisons influence their self-evaluations (Jung et al., 2001). Through the continuous self-evaluation process, individuals determine their characteristics, strengths, and capabilities, and develop consistent self-impressions. In addition, when a comparison source is salient, individuals who perceive the source or standards as relevant will use them as a basis for self-evaluation, inducing self-comparison (Festinger, 1954). The comparison process between the actual self and others considered to be ideal results in ideal/self-discrepancy.

In online shopping environments, consumers may imagine the situation by placing themselves in the picture on the website to process body-related information (e.g., whether the type of clothing would look good on them in terms of fit, color, or style). When consumers encode the information, the visual stimulus of ideal models in the apparel item may facilitate their imaginary information processing. Through the process, consumers may feel body image self-discrepancies when comparing their bodies to those of ideal models. Individuals who believe their body image is close to that of the ideal model will perceive a lower degree of body image self-discrepancy when they compare themselves to the model. However, when individuals believe their body image is largely different from that of the model, they may perceive a higher degree of body image self-discrepancy. Research has supported that individuals whose bodies are similar to models or ideal standards do not hold body image self-discrepancy (Bessenoff, 2006).

Body Image Self-Discrepancy and Body Dissatisfaction

Researchers have found that individuals, particularly young women, who were exposed to images of ideal models tended to express negative evaluations of their bodies (Irving, 199), negative moods, and body dissatisfaction (Altabe & Thompson, 1996; Heinberg & Thompson, 1995; Jung, 2006; Stice & Shaw, 1994). According to self-discrepancy theory, actual/ideal discrepancy is related to vulnerability to dejection (e.g., dissatisfaction, disappointment, or shame), while actual/ought discrepancy is related to vulnerability to agitation (e.g., fear, worry, or guilt). In addition, numerous studies have empirically supported that actual/ideal discrepancy predicted dissatisfaction with self (e.g., Higgins, Klein, & Strauman, 1985) as well as body dissatisfaction (e.g., Cash & Green, 1986; Cash & Szymanski, 1995; Grogan et al., 1996; Heinberg & Thompson, 1995; Lerner & Karabenick, 1974; Lerner, Karabenick, & Stuart, 1973; Posavac et al., 1998; Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991). Therefore, the following hypothesis was proposed.

H1: Body image self-discrepancy induced by comparing the ideal body image of the model in the website and the consumer's body image will be positively related to body dissatisfaction.

Fashion Involvement

Involvement refers to an individual's motivational state of arousal and interest, evoked by external factors (e.g., situation, product, communication) and internal factors (e.g., ego, central values) (Rothschild, 1979) and helps researchers understand consumers' behaviors related to possessions and consumers' attachment to them (Laurent & Kapferer, 1985; Mittal & Lee, 1989; Ohanian, 1990; Zaichkowsky, 1986). Zaichkowsky (1985) defined

involvement as "a person's perceived relevance of an object based on inherent needs, values, and interests" (p. 342). O'Cass (2000) further identified involvement as "being at the heart of the person-object relations" (p. 546). Researchers have proposed that involvement is the most important predictor of purchase behavior (Evrard & Aurier, 1996; Martin, 1998). Involvement level determines an individual's tendency to attach more importance to particular products or engage in particular product acquisition activities (Kim, 2005).

Product involvement refers to feelings of interest and enthusiasm individuals have for diverse product categories (Goldsmith & Emmert, 1991). These feelings may be evidenced in consumers' tendencies to attach more importance to specific products. Therefore, individuals who are highly involved in a specific product category are likely to hold higher importance for the product, have more knowledge about the product attributes and brands, and be more thoughtful about information related to the product class of interest (Kim, 2005). Product involvement also may be derived from the motivation to purchase the "right" product for a specific usage situation (Houston & Rothschild, 1977) and may occur because a particular product characteristic is symbolic of one's identity (Laurent & Kapferer, 1985). Richins and Bloch (1986) suggest two types of involvement—enduring and situational involvements. Enduring involvement is an enduring concern for a product category independent of particular purchase situations. This type of involvement is caused by ongoing interest with the product category and related to the person's self-concept, values, and ego. On the other hand, situational involvement is defined as "a temporary perception of product importance based on the consumer's desire to obtain particular extrinsic goals that may derive from the purchase and/or usage of the product" (Richins & Bloch, 1986, p. 72). Therefore, situational involvement is the raised level of interest arising from a particular purchase situation and

may result in the deliberate evaluation of product, including price, performance features of the product, and/or social and psychological situations related to the purchase and consumption of the product (Dholakia, 2000).

The way individuals assign certain meanings to products can be clarified as the construct of involvement (O'Cass, 2004). Apparel has been considered to be a product category likely to induce high involvement (e.g., Goldsmith & Emmert, 1991; Kapferer & Laurent, 1985) and is associated with symbolic meaning of self (Kaiser, 1997). Fashion involvement refers to "the extent of interest with the fashion product category (e.g., apparel)" (Park, Kim, & Forney, 2006. p. 436). Kaiser's (1997) definition of fashion involvement encompasses broader conceptualization; fashion involvement refers to the extent to which individuals are concerned with fashion and regard it as important (Kaiser, 1997). Fashion involvement is used mostly to predict behavioral variables associated with apparel products, including product involvement, purchasing behavior, and consumer characteristics (Browne & Kaldenberg, 1997; Fairhurst, Good, & Gentry, 1989; Flynn & Goldsmith, 1993a). Individuals who rate high in fashion involvement tend to be extensive clothing buyers (Fairhurst et al., 1989).

Body Dissatisfaction and Fashion Involvement

Researchers have investigated the impact of self-esteem on consumption (Banister & Hogg, 2004) and body esteem on fashion involvement (Rosa et al., 2006). However, the influence of body dissatisfaction on fashion involvement has not been investigated and the relationship between these two variables is not clear. Rosa et al. (2006) found that body esteem leads to higher consumer involvement with apparel. In their study, body esteem was defined as "a deeply held and generalized like or dislike of one's body… and which is

manifest in an individual's positive and negative feelings toward different aspect of his or her body (Rosa et al., 2006, p. 80). Individuals who perceive higher body esteem tend to be interested in and give greater importance to body-involving product categories (Rosa et al., 2006) and try to continually maintain or enhance their self-concept (Epstein, 1980).

Beatty, Kahle, and Homer (1988) proposed that an individual's ego involvement affects his or her purchase involvement. When an individual believes that a product is closely related to one's self-concept, values, and ego, he or she is likely to be concerned about any activities involving the product category, including choice decision. Research concerning body-related consumption (e.g., cosmetic surgery) also shows that individuals who like their appearance (i.e., likely to have high body esteem) are likely to seek ways to improve different body areas to confirm their self-concept (Schouten, 1991; Thompson & Hirschman, 1995). Therefore, individuals who believe that physical appearance is an important component of self-esteem (e.g., high body esteem) show higher involvement with body-involving products to affirm their self-concept and show a higher interest toward such products (Rosa et al., 2006). In contrast, lower body esteem individuals tend to show low-involvement with body-involving products because they do not believe that such products will affirm their self-concept (Rosa et al., 2006).

On the other hand, Cash (1990) claimed that body image leads individuals to actively manage their physical appearances by controlling and modifying the aesthetics of their physical appearance and self-presentation using tools such as cosmetics and clothing. Rudd and Lennon (2000) explored body image and appearance management behaviors in college students using a qualitative study based on self-reported experiences. They found that about

30 percent of the respondents addressed the use of clothing "as a strategy to camouflage some aspects of the body…" (p. 157).

Kwon (1991) suggested that how an individual perceives one's self influences the person's clothing selection, and at the same time, what an individual wears affects the person's feelings about the self (Kwon, 1991). For instance, individuals who have a negative feeling toward themselves may use clothing as a tool to enhance their self-esteem and strengthen their self-concept (Dubler & Gurel, 1984; Fisher, 1973; Kwon, 1991; Sweeney & Zionts, 1989). Kwon and Parham (1994) also found that when young women felt a higher degree of body dissatisfaction (body weight, hips, thighs, and waist), they tended to depend more on clothing for camouflage of their figures, comfort/conceal, and assurance of self (e.g., self-confidence) compared to young women who felt a lower degree of body dissatisfaction. Apparel plays a role as a second skin that can alter one's perceived body image (Horn & Gurel, 1981; Kaiser, 1997) and is often used to improve one's body satisfaction or hide body dissatisfaction relative to cultural ideals (Kaiser, 1997). Conversely, Trautmann, Worthy, and Lokken (2007) found that body dissatisfaction is positively associated with clothing avoidance behaviors. In their study, clothing-avoidance behaviors were measured by the degree to which individuals wear certain types of apparel such as baggy clothing or "fat" clothing to camouflage their bodies, avoid specific types of apparel such as revealing, brightly colored, or tight clothing, wear clothing that distracts attention from their weight, and avoid the process of shopping for clothing. However, except for avoiding the process of shopping for clothing, other items may not necessarily measure consumers' clothing avoidance behaviors; rating higher scores on those items does not necessarily mean they avoid clothing or are not involved in fashion. Individuals may choose a certain type of

clothing to camouflage and to hide undesirable parts of their bodies, but still be interested in clothing and believe that fashion is important. Given the conflicting research findings, it is worth studying to clarify how body dissatisfaction influences fashion involvement. Therefore, the following hypotheses were proposed without specifying the direction of the relationships.

H2: Body dissatisfaction is related to enduring fashion involvement.
H3: Body dissatisfaction is related to situational fashion involvement.

Concerns with Fit and Size of Garments

Fit/size is one of the most important criteria to evaluate when making apparel purchases (Eckman et al., 1990; Hsu & Burns, 2002). Consumer perception of a good-fitting garment may include the individual's desire for a garment to conform loosely to the body, provide comfort as well as to confirm perfectly to the body, and provide maximum positive appearance (Frost, 1988). Frost (1988) suggested that perceived satisfaction with fit implies physical comfort, psychological comfort, and appearance, which work all together (Frost, 1988). Although no research has specifically examined the domain of concerns with fit and size of garments, perceived risk, in general, has been one of the most critical issues in online shopping because of the inability to try on and examine products (Case, 2002; Jarvenpaa & Todd, 1997; Vijayasarathy & Johns, 2000). Cox and Rich (1964) defined perceived risk as "the nature and amount of risk perceived by a consumer in contemplating a particular purchase decision" (p. 33). They found that risk occurs because consumers cannot always be sure that what they purchase will allow them to achieve their buying goals. Cox (1967) also conceptualized perceived risk in terms of uncertainty and consequences. Uncertainty is associated with identifying buying goals and combining these goals with products or brands. Consequences are related to the results of the outcomes, such as functional or performance

goals, psychosocial goals, and the means including money, time, and effort invested to achieve these goals. In addition to the two dimensions of perceived risk, researchers (Case, 2002; Jacoby & Kaplan, 1972; Jarvenpaa & Todd, 1997; Roselius, 1971) have suggested multiple dimensions of perceived risk such as financial risk, performance risk, psychological risk, physical risk, and social risk.

Apparel is a high body-involving product with consumption experience closely related to fit and tactile information (e.g., touch and feel) (Rosa et al., 2006). In physical retail stores, body-related information can be examined by trying on the item, which allows consumers to make visual and embodied evaluation of the garment (Rosa & Malter, 2003). However, in the online apparel shopping environment, because of the inability to try on the garment, customers need to depend on their imagination (simulation resources) to make the purchase decision, which may increase risk with the transaction (Pastore, 2000; Rosa & Malter, 2003). Forsythe, Liu, Shannon, and Gardner (2006) identified three perceived risks from shopping for apparel online, including financial, product, and time/convenience risk. Particularly, product risk may result from a poor product choice, caused by the inability to touch, feel, and try on the product (Forsythe et al., 2006). In their study, product risk consisted of an inability to examine the actual product, size problem with clothes, inability to try on clothing, and inability to touch and feel the item. Therefore, based on the literature related to perceived risk, in the present study, concerns with fit and size of garments are defined as the subjectively determined expectation and amount of risk perceived by a shopper in relation to the fit and size of the garment in contemplating a particular purchase decision.

Body Dissatisfaction and Concerns with Fit and Size of Garments

Although there is no known study that investigated the relationship between body dissatisfaction and concerns with fit and size of garments, researchers have provided empirical evidence that body dissatisfaction is related to individuals' attitudes toward clothing and satisfaction with the fit of garments. Shim, Kotsiopulos, and Knoll (1990) found that individuals who are dissatisfied with their bodies tend to have negative attitudes toward apparel and are less confident about their apparel choices. The higher the body satisfaction, the higher the satisfaction with clothing (Shim & Kotsiopulos, 1990; Sontag & Schlater, 1982). LaBat and DeLong (1990) also found that women with a higher degree of body satisfaction are likely to be satisfied with how they perceived the fit of the garments. Therefore, it is plausible to assume that individuals who perceive a higher dissatisfaction with their bodies may be less confident about how the garments fit on their bodies and, therefore, feel higher degree of concerns with fit and size of garments.

According to the theory of cognitive dissonance, when a consumer confronts new information which is not consistent with one's existing cognitions, the consumer experiences a state of dissonance that may cause psychological discomfort. Therefore, in online apparel shopping, consumers' body dissatisfaction may be caused by the state of dissonance due to the inconsistency between their actual body image and that of the ideal model in the website. In turn, the psychological discomfort or state of dissonance influences consumers' cognitive information processing such as concerns with fit and size of garments. Accordingly, the following hypothesis was developed.

H4: Body dissatisfaction is positively related to concerns with fit and size of garments.

Fashion Involvement and Concern with Fit and Size of Garments

Researchers (Bloch & Richins, 1983; Dholakia, 2000) found a similarity between perceived risk and product involvement in motivating consumer responses. The perception of risk and product involvement both encompass the idea of "importance" of a product to the consumer (Bloch & Richins, 1983). Correspondingly, the importance of the product is a fundamental component of the involvement construct in that an individual's tendency to attach more importance to certain products is determined by the level of the involvement (Kim, 2005). Another key similarity is that both the level of involvement and the amount of perceived risk of the consumer during purchase have appeared to decide the depth, complexity, and extensiveness of cognitive and behavioral processing during the consumer's decision-making process (Dholakia, 2000). On the other hand, one conceptual difference between perceived risk and product involvement is that perceived risk only focuses on the negative consequences occurring from purchases and use of the product; whereas, product involvement is also influenced by positive consequences and includes characteristics such as ego-involvement and commitment to a particular brand(s) (Muehling, Laczniak, & Andrews, 1993), factors not related directly to risk associated with the product. Several studies provide evidence that perceived risk influences situational involvement [i.e., the raised level of interest arising from a specific situation, typically a purchase occasion (Dholakia, 2000, p. 1341)]. For example, Bloch (1981) suggests that situational involvement arises when perceived risks associated with a purchase outcome increase.

Perceived risk has also been considered as one dimension of product involvement (Dholakia, 2000). Rothschild (1979) proposed that perceived risk can be an implicit measure of product involvement as are functional and psychological risks. As a result of factor

analysis of apparel product involvement, Kim (2005) found four dimensions, including perceived product importance/risk, probability of a mispurchase, perceived symbolic sign, and pleasure/interest.

Interestingly, perceived risk has also been viewed as an outcome of product involvement. Venkatraman (1989) proposed that because enduring involvement is a long-term product concern, whereas perceived risk is limited to the purchase situation, enduring involvement is an antecedent of risk. Folkes (1988) suggested that ease of retrieval of product performance experiences from memory (i.e., high levels of involvement) appears to affect individuals' judgments of the probability of product failures. Therefore, perceived risk may be caused by the individual's involvement with the product. Dholakia (2000) found that situational involvement is positively related to both social and functional risks in the context of various consumer products (e.g., automobile, bathrobe, soup). In the study, social risks refer to the negative appraisal of the self by significant others, and functional risks refer to performance, financial, time, and physical risks caused by the purchase and consumption of the product. Rosa et al. (2006) also found that fashion involvement with apparel positively influences overall concern with fit of the garment in the online shopping context. Therefore, the following hypotheses were designed:

H5: Enduring fashion involvement will be positively related to concerns with fit and size of garments.

H6: Situational fashion involvement will be positively related to concern with fit and size of garments.

Loyalty Intentions

Researchers have defined loyalty as repeat purchase and/or patronage of a single brand or store over time, based on favorable attitudes encompassing cognitive, affective-evaluative, and behavioral factors (Asseael, 1998; Holland & Baker, 2001; Jacoby, 1971). Loyalty also includes both attitudinal and behavioral dimensions (Oliver, 1999). The cognitive factor includes loyalty toward a brand, based on information about the particular brand. The affective factor refers to customers' liking for or positive attitudes toward a brand. The attitudinal dimension refers to a particular desire to continue a relationship with a retailer (Czepiel & Gilmore, 1987). The behavioral dimension implies repeat purchase of products or services in a specific category (Neal, 1999). Srinivasan, Anderson, and Ponnavolu (2002) defined e-loyalty as "a customer's favorable attitude toward the e-retailer that results in repeat buying behavior" (p. 42).

Although continuous buying behavior does not necessarily reflect a commitment to brand loyalty, repeated purchasing of one brand over time is an essential indication of brand loyalty (Blackwell, Miniard, & Engel, 2001). Therefore, in the current study, loyalty intentions encompass the concepts of purchase, repurchase, and patronage intentions. Blackwell et al. (2001) defined purchase intention as "what we think we'll buy" (p. 283) and repurchase as "whether we anticipate buying the same product or brand again" (p. 283). Osman (1993) defined loyalty patronage behavior as "the repeat purchase behavior at a particular store for either the same product(s) or any other products" (p. 135).

Concerns with Fit and Size of Garments and Loyalty Intentions

Researchers found a negative influence of perceived risk on purchase and patronage intentions in various non-store shopping contexts. Jasper and Ouellette (1994) determined

that perceived risk is the main reason why catalog shoppers purchase less frequently. Perceived risk has been found to be negatively associated with purchase intention in television shopping (Kim & Lennon, 2000a) as well as online shopping (Park & Stoel, 2005). Forsythe and Shi (2003) also found that financial risk, product performance risk, and time/convenience risk negatively affected patronage factors (e.g., amount spent on the website, frequency of searching with an intent to buy, and frequency of purchasing online) in online shopping. However, the above studies were not concerned with perceived risk related to the fit and size of garments. Rosa et al. (2006) specifically investigated the relationship between concern with fit and online apparel purchase intention and found a negative relationship between the variables. Accordingly, the following hypothesis was proposed.

H7: Concerns with fit and size of garments will be negatively related to loyalty intentions.

Figure 1.1 shows the hypothesized relationships among body self-discrepancy, body dissatisfaction, enduring and situational fashion involvement, concerns with fit and size of garment, and loyalty intentions.

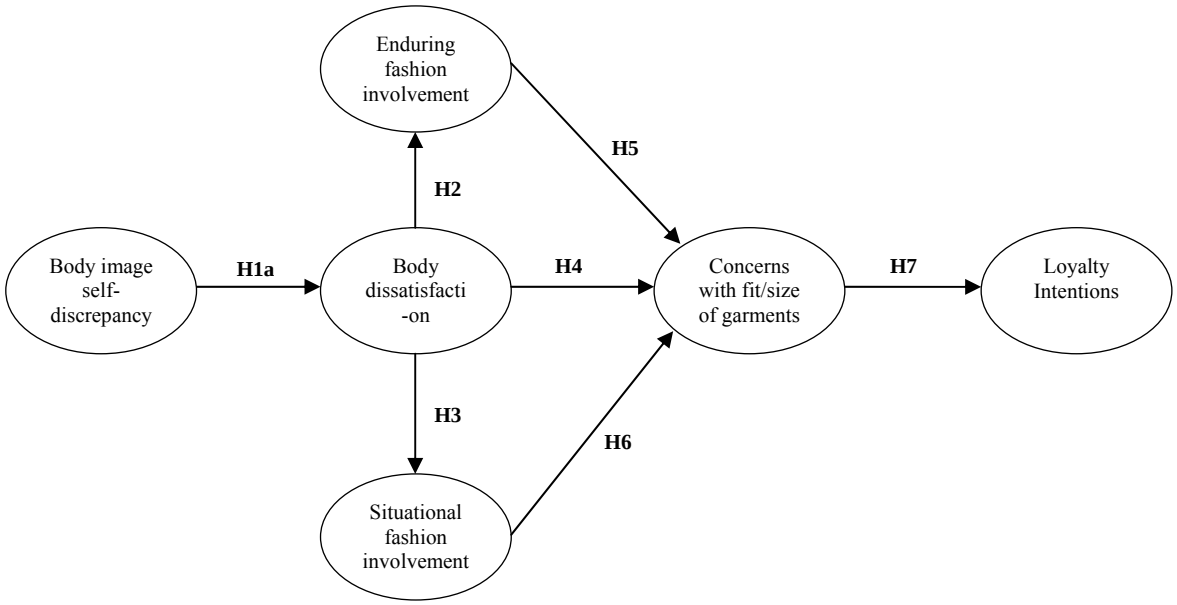


Figure 1.1. The theoretical model of relationships among body image self-discrepancy, body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions

CHAPTER 3.

PHASE 1: QUALITATIVE STUDY (FOCUS GROUP INTERVIEW)

This chapter illustrates a preliminary qualitative study conducted to investigate and develop a scale to measure consumers' concerns with fit and size of garments in apparel shopping. The purpose of the qualitative phase of this research was to explore possible general dimensions of overall concerns with fit and size of garments in the context of offline and online apparel shopping. The resulting questionnaire was developed for use in the quantitative phase of the study. In this chapter, I report identification of potential scale items for measuring concerns with fit and size of garments. Therefore, this chapter consists of 1) the methodological description of the qualitative study, 2) descriptions of the qualitative data analysis and results, and 3) a discussion of findings from the qualitative part of this study.

Method

Sample

Both the qualitative and quantitative phase of the study used college students as a sample. College students were selected because young consumers show a higher online presence (Shop.org, 2004b). In particular, college students aged 18 to 22 are a primary source of future growth in online sales (Silverman, 2000). College students have greater levels of Internet access compared to most other population segments (John, 2002; Kim & LaRose, 2004). According to Harris Interactive (2002), 92 percent of college students own a computer and 93 percent access the Internet. Online spending by college students exceeds that of all other demographic segments in the U.S. (O'Donell and Associates, 2004). U.S. college students' online purchases reached $1.4 billion in 2002, following a 17 percent growth over

the previous three years (Roemer, 2003). Clothing is one of their most popular online shopping product categories (Case & King, 2003; Ige, 2004; Silverman, 2000). In addition, almost as many male college students (49%) had purchased apparel, at least online, as had female college students (51%) in the U.S. (Cowart & Goldsmith, 2007).

For the qualitative phase (focus group interviews) of this research, the interviewees were recruited from the TC165 (Trend and Consumer Analysis) and TC372 (Sourcing and Global Issues) classes at Iowa State University (see Appendix B for the class announcement and email message). The interviewees were over-recruited by 20 percent, because some students may not wish to participate nor be available on the day of the interview (Morgan, 1988). Therefore, a total of 56 students were recruited and 29 students (52 percent) participated in the focus group interviews on a voluntary basis. Descriptive statistics for the sample's demographic characteristics are presented in Table 3.1. The majority of the sample included Caucasian students (79 percent), between 18 and 22 years old (86 percent); about half of the students majored in Textiles and Clothing.

Tabl 3.1. Descriptive Statistics of Focus Group Interview Sample Characteristics

	f	%	*M*	*SD*
Gender:	(*n* = 29)			
Male	8	27.6		
Female	21	72.4		
Age:	(*n* = 29)		20.4	2.51
18-19 years old	13	44.8		
20 – 22 years old	12	41.4		
23 – 25 years old	3	10.3		
26 – 28 years old	0	0		
29 years old or above	1	3.4		
Ethnicity:	(*n* = 29)			
African American	2	6.9		
Caucasian American	23	79.3		
Hispanic/Hispanic American	0	0		
Native American	0	0		
Asian American	2	6.9		
Other	2	6.9		
School year:	(*n* = 29)			
Freshman	10	34.5		
Sophomore	6	20.7		
Junior	8	27.6		
Senior	5	17.2		
Major:	(*n* = 29)			
Agriculture Communication	1	3.4		
Animal Science	1	3.4		
Art	1	3.4		
Business	1	3.4		
English	1	3.4		
Journalism	4	13.8		
Marketing	2	6.9		
Public Relations	1	3.4		
Textiles and Clothing	15	51.7		
Undecided	2	6.9		
Online apparel shopping experience:	(*n* = 29)			
Yes	25	86.2		
No	4	13.8		
Number of apparel items purchased online in last six months	(*n* = 29)			
0	9	31.0		
1-5	12	41.4		
6-10	4	13.8		
11-15	1	3.4		
16 more	3	10.3		

Instrument

For Phase 1, data were collected through focus group interviews, using structured questions developed for the present study (see Appendix D for the interview questions). Questions were developed to explore group members concerns and risks associated with fit and size of garments in the offline and online shopping contexts. Stewart and Shamdasani (1990) suggested when generating questions for the interview guide, two principles should be considered: (1) questions should be ordered from the more general to the more specific and (2) questions of greater importance should be placed early, whereas those of lesser significance should be placed near the end. The funnel approach (from general to specific) is one technique of engaging the interest of participants quickly. Therefore, concerns with fit and size of garments in offline (physical store) apparel shopping, which is a more general way of apparel shopping, were asked about first, followed by questions about online apparel shopping. Although not directly associated with the objective of the present study (Phases 1 and 2), the third and fourth questions were include to facilitate discussion and provide opportunities to discuss how their experiences about fit and size of garments in retail stores are associated with their concerns in online stores. Thus, respondents could elaborate how their ideas on the previous topics were interrelated. For interviewees who had never purchased online, the interviewer asked them to imagine what types of concerns or risks with fit and size of garments they would consider if they purchased apparel online. Items addressing gender, age, ethnicity, major, school year, and items related to interviewees' online apparel shopping experiences were included and asked before conducting the interviews. (see Appendix D for the questionnaire).

Data Collection Procedure

A focus group interview was used for this study because a focus group interview provides insights into the attitudes, perceptions, and opinions of participants, using a non-directive approach to interviewing in which the emphasis shifts from the interviewer to the interviewee (Krueger, 1988). In addition, this method allows participants to hear each other's responses and to make additional responses to build what other people say (Patton, 1987). After obtaining approval from the Institutional Review Board (IRB) regarding the use of human subjects (see Appendix A), five sessions of focus group interviews were conducted within two weeks. At the beginning of each session, the purpose of study was addressed, confidentiality and anonymity were assured, and voluntary participation was solicited. In addition, interviewees were asked to sign the consent form and answer demographic questions before beginning the interview (see Appendix D for the questionnaire). Each interview was recorded via a digital recorder. A total of 29 students, including male ($f = 8$) and female ($f = 21$), [session 1 (4 interviewees), session 2 (3 interviewees), session 3 (12 interviewees), session 4 (4 interviewees), and session 5 (6 interviewees)] participated in the interviews and were given class credits as an incentive. On the average, each focus group interview was conducted for 40 minutes.

Coding Guide

First, the data were transcribed to be used as a complete record of the discussion and to facilitate data analysis. Next, the transcriptions were content-analyzed. The purpose of this analysis was to search for themes and patterns that emerged from the focus group interviews. Although concerns with fit and size of garments in offline and online shopping were asked about in separate questions (see Appendix D), most of the concerns discussed by

interviewees were applicable to both shopping contexts. Therefore, the responses from the first and second questions were combined before the content-analysis.

The present study used the constant comparison approach, which entails comparing data and themes until enough themes are developed to cover the data (Esterberg, 2002). The data were examined line by line, and subthemes and themes were identified through the coding process. However, because the purpose of the focus group interview was to develop potential scale items, the consumers' narratives, which included multiple meaningful statements, were divided into a simpler form of narrative to facilitate the coding process. For example, the following narrative involves at least two different themes: concern with uncertainty about the sizing system of apparel stores (brands) (e.g., "vanity sizing," "…I have to get medium there") as well as concerns with body image and overall appearance (e.g., "feel bigger," "look thinner," "ideal of being smaller"). Italic letters indicate the subthemes identified.

> I agree there're like a lot of *vanity sizing* in certain stores, like Abercrombie, Hollister are so much smaller. A small is what *I usually wear everywhere else so, small, I have to get medium there*. I think that they do that because everyone wants to *look thinner*, but by doing that, it just makes people *feel bigger*, so I think it just drives in the social, like *ideal of being smaller to fit their clothes* (Female 8)

Therefore, this narrative was divided into two statements. Then, the statements were reexamined line by line to determine the subthemes. The subthemes for the content analysis were determined to be meaningful words, phrases, and sentences (i.e., words, phrases, and sentences including one idea or belief in answer to an interview question). The statements, consisting of multiple meaningful words phrases, or sentences were, again, divided as far as possible without losing the original meanings of the words, phrases, and sentences, and then

the divided statements were recorded separately. For example, an interviewee mentioned, "It's just risky, is it gonna fit you correct or is it gonna fit the way it looks online in the photographs?, things like that." This sentence was reconstructed as two meaningful sentences (i.e., "Is it gonna fit you correct" and "Is it gonna fit the way it looks online in the photographs"). Thus, the statements (the simplest form of narratives) were sorted, based on subthemes, which, in turn, were classified into common themes by the researcher (see Table 3. 2).

Trustworthiness. Once the coding guide was completed and the research code statements defined, 61 example statements were randomly selected from 135 statements and coded by another doctoral student in Textiles and Clothing to establish the trustworthiness and to minimize research bias. The second coder was asked to categorize each statement into one of the seven themes based upon the subthemes. Inter-coder reliability was calculated by dividing the number of items in which the two coders disagreed by the total number of items coded. Inter-coder reliability was assessed at 96.7 percent from the 61 descriptors, which is considered acceptable. The researcher coded all statements with the coding guide.

Results

As a result of the content analysis of the focus group interviews, a total of 135 statements of concerns with fit and size of garments in the offline and online shopping contexts (see Table 3.2) and 50 subthemes were identified. In addition, as a result of an additional coding process combining the 50 subthemes, seven themes emerged that included: (1) concerns with unavailability of size, (2) concerns with body image and overall appearance, (3) concerns with product performance, (4) concerns with uncertainty about the sizing system of apparel stores (brands), (5) concerns with physical comfort, (6) concerns

with projecting a correct impression, and (7) concerns with inability to try on garment in online shopping.

Among the seven themes, the most frequently mentioned themes were "concerns with body image and overall appearance," and "concerns with inability of trying on in online shopping" (each 22 percent of responses), followed by "concerns with uncertainty about the sizing system" (21 percent). The least frequently mentioned theme was "physical comfort" (1.5 percent).

Concerns with Unavailability of Size

"Concerns with unavailability of size" ($f = 12$) were addressed by subthemes such as (1) may not find my size, (2) may not find the exact size, (3) may not carry my size, (4) may spend additional time and effort to find a size and fit, and (5) may have hard time to find a size and fit. "Concerns about unavailability of size" refers to concerns about not finding a size or the need to make an additional effort to find the right size and fit when shopping for apparel. Respondents addressed stock out situations as the reason they did not find their size in a store. Two respondents mentioned that specific sizes sold out more quickly than other sizes, and one respondent pointed out he could not find a size because some stores did not carry larger sizes in their stores, although the company actually produced them. In addition, one respondent mentioned that she did not find her size for a certain garment style because she was short and the store did not offer nor produce the style in petite sizes. Stock-out situations can be a concern to consumers since they already have a purchase intention about a specific item (Kim, 2004). Although stock-out situations can be handled by online ordering, as mentioned by one of the respondents, the situation can be particularly frustrating to consumers when it is associated with their body image (e.g., overweight) or dissatisfaction

with certain body parts (e.g., short legs). The following narratives illustrate respondents' concerns with not finding a correct size.

> I think a lot of them start at 30, 32, 34, but 32 or 34 is usually *out of stock*, I have to order my size and mail it to me. (Male 1)

> Yeah, the stores always have double zero, zero, and then 10, 12, 14. I think *they never have 2, 4, or 6* because those are the most popular sizes. (Female 1)

> It's hard to find bigger sizes. *Most stores don't carry large sizes*. About like 38 or 40 is the highest in general retail stores and you have to go online to buy stuff. (Male 2)

> I am short, so I shop in a petite section. Sometimes *I don't find what exactly I am looking for*. Sometimes I like something in a regular size and *I can't find that in a petite size*, so that discourages me from buying. (Female 2)

Two respondents addressed concerns that they might have to make additional efforts or have difficulty to find the correct fit and size of garments in a store. One respondent mentioned that she usually spends more time to find a correct size and fit of pants because she is very short. Another respondent stated that he has had a hard time to find his size because it is not an average size and, therefore, most stores do not have enough quantity of the size in stock. One respondent mentioned that she has to make additional effort to find her size because sizes offered across brands are not consistent.

> I am very short, so I kind of *take more time* to figure out what fits me right. Things like that. (Female 3)

> The models are like almost nothing like what they carry in the store because the models are all going to be really skinny, but if I find it in the store *I have a hard time finding 30 or 32* because the average waist size is probably 36 or 38. (Male 3)

> There's XXI something, and there's another store just like Forever 21. Those ones are, *you have to be mentally prepared* [to find a right size]. (Female 4)

Concerns with Body Image and Overall Appearance

"Concerns with body image and overall appearance" was the most frequently mentioned theme (*f* = 30) and consisted of such subthemes as (1) different from ideal body, (2) my body may not fit the garment, (3) garments reflecting the ideal body, (4) may not fit my body proportion, (5) the length of the garment may not fit, (6) may have to get an alteration, (7) may wear different sizes for top and bottom, (8) may look wider, (9) may feel fat, and (10) may not look good on me. Concerns with fit and size related to body image and overall appearance refer to concerns with fit and size of garments derived from interviewees' general body image, dissatisfaction with their specific body parts, and overall appearance. Body image is the mental image that individuals hold of their bodies and includes perceptions and attitudes (Fallon, 1990). Body image includes how an individual feel about body attributes and how these feelings influence behaviors and perceptions of size, shape, weight, features, movements, and performance of the body. Evaluation of how a body is dressed is based on the body image of an individual. Individuals may select clothes to enhance their body image (i.e., look good), emphasizing positive parts or concealing less desirable parts, subjectively assessed, of their bodies. The fit and size of the garment plays an important role to enhance an individual's dressed body and, therefore, may be closely related to perceptions of and attitudes about one's own body.

Among the subthemes, "The length of the garment may not fit" and "May have to get an alteration" related to concerns with the length of the garment, were mentioned 11 times. "May not fit my body proportion" was also frequently mentioned by respondents (*f* = 8). Respondents tended to feel concerns when the apparel involved specific body parts that they believed were disproportionate. In online shopping, this type of concern appeared to be

emphasized when respondents compared their bodies to those of models on the website. One respondent stated concerns that she might even have to buy different sizes for tops and bottoms because her body is not proportionate.

> Once I bought a pair of pants. *They fit in the waist, the thighs are always too tight. If I get them to fit in my thighs, then the waist is too big.* (Female 5)

> A polo shirt like this, *I need a larger fit, large, extra large, but then way too much space and the side areas… if I get a smaller size, then not enough room for my shoulders and arms* go up like there. (Male 4)

> I think a lot of times, even if the models are plus size or bigger, whatever, they are always proportionally correct. Like they're never short or their waist isn't different from their legs, stuff like that, so that gets frustrating because I know that *my body is not as proportional like those models* [on the website]. (Female 6)

> Sometimes if you buy a suit, outfit, *different sizes for the top and the bottom*. (Female 7)

Respondents also stated that some apparel brands try to project a certain brand image of the ideal body, which is different from bodies of most consumers. The cultural standards of the ideal body are unrealistic and not achievable by most, making many people vulnerable to images of the ideal body (Gimlin, 2002) because these cultural ideals are used as criteria for evaluating one's body and general physical appearance. Research has found that women exposed to ideal images tended to be less satisfied with their bodies (Irving, 1990; Richins, 1991). Because of discrepancy between the ideal body image and perceptions of their own bodies, people may feel concerns that their bodies may not fit the garments sold in the stores. If the garments do not fit, they may feel that their bodies, not the garment dimensions, are far from the ideal body, hence causing dissatisfaction with their bodies.

> …I think that they do that because everyone wants to look thinner, but by doing that, it just makes people feel bigger, so I think just drives in the social, like *ideal of being smaller to fit their clothes*. (Female 8)

> For me, it's like I don't really think like I am set with my weight. I work out whenever I can, whatever, I try to be healthy. I am okay with my body, but *I was almost like a size away from not being able to fit into jeans in that store* [Abercrombie and Fitch]." (Female 9)

> I used to work at Wet Seal, and we had to wear their denim, and I hated it because those are that kind of jeans. *I used to feel more like those jeans are for skinny, skinny legs, skinny figures and that's not me*. (Female 10)

Concerns with fit and size of garments related to the specific parts of respondents' bodies. Six respondents stated their concerns related to the length of the bottom pants, including jeans, and having an alteration because they are short.

> I am really really shorter than… so *most of the pants are like, the legs are longer*. (Female 3)

> …but jeans, *you have to worry about the length*. (Female 11)

> *I always buy pants way too long and have to get them hemmed*. (Female 12)

> Because I am short, *I take it for granted that all my jeans have to be altered when I buy them*. (Female 13)

Concerns with fit and size of garments were also associated with overall appearance such as whether the garment looks good, and whether the garment makes the body look bigger or wider. Due to the inability of trying on garments, this type of issue may be more critical in online shopping, as consumers have to guess at how they look wearing the garment. Respondents were concerned that they might have to put forth a lot of cognitive effort, imagining the fit of the garment and picturing how it works with their body.

> I just worry about... *actually make me [look] wider*? (Female 9)

> *If I don't know it's good on me*, I couldn't buy just because of the brand. (Female 13)
>
> After for a while, you kind of get an idea what certain styles or clothing look good on you and which ones don't,… *those don't look good on me because I have this problem.* (Female 14)

Concerns with Product Performance

"Concerns with product performance" ($f = 20$) were addressed by such subthemes as: (1) may not fit properly, (2) may not fit right, (3) may not fit precisely, (4) may not fit perfectly, (5) may not fit well, (6) too small, (7) too tight/fitting, and (8) material doesn't work. "Concerns with product performance" are concerns about whether the garment fits and performs well with the individual's body. About half of the comments, 12 out of 20, were related to whether the garments fit properly, correctly, precisely, perfectly, and well. Concerns about whether an apparel item fit well were not limited to online apparel shopping, where consumers cannot try on the product. Respondents who shopped in offline stores (retail stores) also addressed these same issues, because the sizing system of the store or brand is not consistent throughout even the same style. Respondents stated concerns about whether the product material worked well with their bodies. In addition, one respondent mentioned that it was hard for her to shop online because the type of fabric used for the garment determines the fit of the garment, and she could not be sure how the material works with her body. Although e-retailers utilize various visual devices to reduce consumer's perceived risks when shopping for apparel online, it appears that the lack of tactile information is still a main factor of consumer's concerns with fit and size of garments.

> …then you have to return it because *it doesn't fit properly*. (Male 4)

> When I go shopping, I just get multiple sizes for the same shirt and try them on, so… As far as the problem, it's more time consuming, just something *doesn't fit right*, then try one size up, it's still too small, you have to keep trying on more things. (Male 5)

> I feel like if I go to websites like different brands that I am not like really comfortable with, then I probably ask people, like if anyone else has shopped online, on the website, are they okay? *Is the fit pretty precise*? *Is it a little big*, or something like that, just to see if anyone else has any input before I look at something. (Female 17)

> I mean the biggest concerns in online shopping is, like *does it really fit you perfectly*? (Female16)

> Abercrombie and Hollister, *they are very small*, they have really small sleeves and really short. (Female 14)

> There's an example showing stores don't fit the same. Do you shop at Forever 21? I wore medium or large because stuff in *them is so tight, fitting*. (Female 15)

> For me, it's kind of hard [shopping online] because I want to know what material it is. But not knowing what material it is like, sometimes like *some materials don't work with certain types of bodies, stuff like that*. Like shirts, mixed materials can be different from cotton or whatever. (Female 18)

Concerns with Uncertainty about the Sizing System

"Concerns with uncertainty about the sizing system" (*f* = 28) was addressed by subthemes as: (1) the sizing system is not accurate, (2) the sizing system is not consistent, (3) do not trust the sizing system, (4) different sizing system from store to store, (5) may wear a different size, (6) may wear a bigger size, (7) not sure about my size, and (8) different cut depending on brands. "Concerns with uncertainty about the sizing system" refers to concerns about whether the sizing system of a store or brand is accurate or the sizing system is consistent with different stores or brands. Among the subthemes, "Different sizing system from store to store" (*f* = 7) and "May have to wear a bigger size" (*f* = 8) were the two most

frequently mentioned subthemes by the respondents. As one of the respondents stated, many fashion brands practice "vanity sizing" – a marketing strategy in which designers or fashion companies alter their sizing (i.e., putting smaller sizes on their labels) to attract target customers and create loyalty (Burns, 2006). However, some designer labels and fashion brands, especially targeting younger customers, create their own sizing systems, called exclusionary sizing, to keep large customers out because having larger customers wear their clothes is not helpful for their brand image. In the focus group interviews, Abercrombie and Fitch and Hollister were frequently mentioned by the respondents as practicing exclusionary sizing. A customer who believes that his/her body image is inconsistent with the ideal body may feel rejected by stores or brands and perceive a higher degree of concern with fit and size. Even in stores that may not practice exclusionary sizing, respondents mentioned their experiences and concerns related to inconsistency in the sizing system; even for a same style, the fit and size can be different from piece to piece. Therefore, inaccurate and inconsistent sizing systems of stores or brands may increase consumers' concerns with fit and size of garments in both offline and online apparel shopping contexts.

> I agree *they're like a lot of vanity sizing in certain stores, like Abercrombie, Hollister are so much smaller. A small is what I usually wear everywhere else so*, small, I have to get medium there. (Female 8)

> … stores like American Eagle and Abercrombie, not Abercrombie as much, smaller American Eagle like and Abercrombie and Hollister, *it's like more medium or large because they are small*. (Female 19)

> I think, just overall the fact that like, basically *every store has like different sizes*, *like you wear different sizes, pretty much in every store*. It's just kind of annoying. Like, you have to memorize what size you are in the store, stuff. (Female 20)

> Even though I wear a 32 waist, sometimes like, 32 is like a tight 32, so you have to go 33 something like that. *Although the sizes are pretty similar from brand to brand, still there are some differences*. (Male 1)

> One time I bought three polos. They were all the same, but different colors, all the same size, *but one was smaller than the others*. (Male 4)

> Victoria's Secret offers so many different brands within their stores. It's not just like one brand, same with like Macy's or something like that. When you order on there, if it's a different brand you haven't tried on, you know like, you have shopped there before and *your size whatever, it's gonna vary from brand to brand*, so I think it's hard when there are different brands involved in a bigger company. (Female 8)

> I think that depends on brands, like which brand jeans you get it. *They may fit differently. It's not a standard size or standard marker.* (Female 15)

> The reason I don't shop online is that *I am not exactly sure about my size*, how exactly it fits. I wear different sizes in different stores. But if I am going to the store, I at least go and try it on, but if I purchase online… Because then you have to spend your own money to send them back. That's inconvenient. (Female 21)

Concerns with Physical Comfort

Comments addressing physical concerns ($f = 2$) were mentioned only twice and include a subtheme, uncomfortable. "Concerns with physical comfort" refers to concerns about whether the garment may cause bodily discomfort and is consistent with physical risks in apparel shopping, identified by previous researchers (e.g., Simpson & Lakner, 1993).

> … but when shirts are really tight, it's just really *uncomfortable*. (Female 20)

> I like to get clothing that looks nice, but at the same time, it just like *feels comfortable* and they fit pretty well, doesn't matter much how they look. (Female 17)

Concerns with Projecting a Correct Impression

"Concerns with projecting a correct impression" (*f* = 14) included such subtheme as: (1) look weird, (2) feel confident about how the garment fits me, (3) project self-image, (4) be too revealing, and (5) reveal the body part that I want to hide. Concerns with projecting a correct impression included concerns about how other people look at the self and whether the individual sees him/herself projecting an appropriate self-image to others. The concerns about impressions related to feeling confident about one's appearance. As suggested by the looking-glass self theory (Cooley, 1902), individuals see themselves in the eyes of others and perceive themselves as others see them. In addition, perceived evaluations influence the person's future adoption and use of products (Solomon, 1983). In the present study, two respondents mentioned that they were concerned that they might not project the self-image they want to show other people when wearing a garment. In addition, three respondents stated concerns about whether a garment may be too revealing, possibly projecting a sexual image inconsistent with the individual's sense of self.

> …if I am buying a shirt and the sleeves are really wide, then my arms are gonna feel really small. I can't be going around campus with a shirt that makes my arms look small. I mean, I have *this image of myself* that I have muscles, but I mean, having that shirt that I actually like is tighter, I probably can convince myself. (Male 4)

> Like girls, you know, you don't wanna buy something that looks like a little girl or makes you a flirter. I think you, when you are a girl, you want to look more sophisticated and *look like your image*. (Female 16)

> Some people are more conservative, so, you have, you know, *too revealing*, not long enough, too long, whatever. (Female 21)

> You feel more *confident* because you know that whatever you buy will fit your body. (Female16)

> I think everyone obviously has stuff they are not comfortable, so *everyone looks at the stuff that, like hides that*. (Female 21)
>
> But jeans, you have to worry about hips and the length and your waist and *you don't wanna be a muffin topping over*. (Female 11)
>
> You kind of *look like an idiot* in those leg warmers you are wearing with that skirt and those flip flops. (Female 19)
>
> They might look different. Clothes may fit differently on different people. They might look really good on the model, but then when I get them, *they look really weird on me*. (Female 15)
>
> Sometimes like even their advertising (Victoria Secret) is deceiving because like I ordered a dress through them and it looked awesome on the model and was really, but when I got it, *it was hideous*. (Female 3)

Concerns with Inability to Try on in Online Shopping

Most of the concerns with fit and size of garments in online apparel shopping were related to an inability to try on the garment. This type of concern ($f = 29$) was addressed by such subthemes as: (1) fit different when tried it, (2) look different from what I see on the website, (3) fit differently on me than fits on the model, (4) have to guess if the garment will fit, (5) have to picture wearing it, (6) have a hard time imagining the fit of the garment, (7) my guess about the fit may not be correct, (8) cannot depend on the fit shown on the website, (9) receive a wrong item, (10) would not buy without trying on, and (11) not sure about my size. These types of concerns are mainly related to whether the garment may fit differently than when consumers actually tried it on and the risks that consumers may have to make a guess when imagining the fit of garments when shopping for apparel online. Particularly, respondents mentioned that it is hard for them to imagine the fit of the garment looking at the garment fit on a model because of the discrepancy between their body and that of the model.

"I mean the biggest concerns in online shopping is, like *is it really fit you perfectly or does it look as good as it shows on the screen*. Yeah, I have returned some of them before. It didn't fit right, like what I saw on the website, so I returned it." (Female 3)

"I don't usually [shop online], because I don't look like the models. So, I know that *how it fits the model is not how it's gonna fit me*. So, I don't look at that. I just try to ignore the model and look at the clothes. I think you just kind of need a model to visualize, so not just like a pair of jeans they took off laying them on the table whatever." (Female 21)

"I guess, it's inconvenient if your guess isn't correct, then you know if you get it, doesn't fit you. It's inconvenient because you have to send them back. It's pretty troublesome to do that. It's just risky, is it gonna fit you correct? *Is it gonna look the way it looks online, in the photographs?* Things like that." (Female 11)

"In stores, you can actually check for your perfect size, but in online, *you are just kind of estimating, you are just guessing*, like okay this is my waist, so I am gonna guess if this is gonna fit me." (Female 3)

"A major risk is, *you just kind of have to guess whether or not it's gonna fit*." (Female 19)

"A lot of times, even if it is our size sometimes *how we picture ourselves in our heads, or daydream about ourselves, or see ourselves in our heads*, we kind of, don't focus on the flaws, so y*ou know if you picture yourself wearing that*, you picture, like kind of what it looks like on the model. You don't picture your muffin top or whatever and when you get it, it looks stupid." (Female 14)

"It's like almost like *you have to try to attempt to imagine yourself trying to wear* but I just have a really hard time with that. When I am going into a store, like I end up with a pile of stuff, I have to try on, like, okay maybe I can do medium, so medium is a little too big, then maybe I can try small, then small is too tight." (Female 9)

"Well, models appeal to people most of the time because they are good-looking and most of products, someone is overweight can't fit into it." (Female 1)

"Even though I know my size, a lot of stores, I don't know, I would so hesitate to buy online and like they could mess up and send me the wrong pair of jeans. They might look different. Clothes may fit differently on different

> people. *They might look really good on the model, but then when I get them, they look really weird on me*." (Female 20)

Three respondents stated concerns that they might receive an item that is the wrong item or size.

> "Actually, I haven't bought anything online because I am scared. If I order something, the payment is going through, when it comes to me, it can just be a wrong thing. A friend of mind, he ordered slippers online, he ordered size 10, but instead of sending him a men's size 10, they sent him a boy's size 10. After that, I am really scared to buy anything online." (Female 3)

In addition, three respondents stated that they would not buy apparel without trying it on.

> I don't normally buy jeans online because *I want to try them on*. But if I were, I probably would look at the measurement chart and measure myself and be sure it's gonna fit. (Female 1)

> *I should try on everything*, especially shirts, so I never bought shirts online. Even in a same brand, fits are so different. (Female 8)

Table 3.2. Results of the Focus Group Interview: Concerns with Fit and Size of the Garment in the Offline and Online Shopping Contexts

Theme	Subtheme	Example statement	*f*[a]	%[b]
Concerns with unavailability of size	May not find my size	"…You don't get the size you want", "…so I can't usually find my size"	5	3.7
	May not find the exact size	"I don't find what exactly I am looking for"	1	.7
	May not carry my size	"Most stores don't carry larger sizes"	1	.7
	May spend additional time and effort to find the size and fit	"You have to be mentally prepared (to find a right size)", "…take more time to figure out what fits me right"	4	3.0
	May have hard time to find a size and fit	"I have hard time finding (size)"	1	.7
			12	**8.9**
Concerns with body image and overall appearance	Different from ideal body	"My body shape or size is different from the Caucasian shape."	1	.7
	My body may not fit the garment	"I was almost like size away from not being able to fit into jeans that the store"	2	1.5
	Garments reflecting the ideal body	"…so I think just drives in the social, like ideal of being smaller to fit their clothes", "…like for skinny, skinny legs, skinny figures and that's not me"	3	2.2
	May not fit my body proportion	"…fits in the waist, the thighs are always too tight", "my body is not as proportional like those models"	8	5.9
	The length of the garment may not fit	"I am really shorter than…, so most of the pants are longer"	3	2.2
	May have to get an alteration	"I always buy pants a way too long and have to get them hemmed"	6	4.4
	May wear different sizes for top and bottom	"…different sizes for the top and the bottom."	1	.7
	May look wider	"…actually make me (look) wider."	1	.7
	May feel fat	"I feel like super fat"	1	.7
	May not look good on me	"It looks good on me" "I like get clothing look nice."	4	3.0
			30	**22.2**
Concerns with product performance	May not fit properly	"The size you have doesn't fit properly"	2	1.5
	May not fit right	"doesn't fit right"	5	3.7
	May not fit precisely	"Is the fit pretty precise?"	1	.7
	May not fit perfectly	"(if) it is really fit you perfectly"	2	1.5
	May not fit well	"I just worry about the size and if it fits well"	2	1.5
	Too small	"really tiny", "very small"	2	1.5
	Too tight/Fitting	"really tight" "Stuffs in there are so fitting"	3	2.2

Table 3.2. (continued)

	Material doesn't work	"Some materials don't work certain types of body stuffs"	3	2.2
			20	**14.8**
Concerns with uncertainty about the sizing system	The sizing system is not accurate	"There're like a lot of vanity sizing it certain stores"	1	.7
	The sizing system is not consistent	"…all the same size, but one was smaller than others"	5	3.7
	Do not trust the sizing system	"I don't trust that though"	1	.7
	Different sizing system from store to store	"Depending on brands…they may fit differently", "They have different sizes in different stores"	7	5.2
	May wear a different size	"…it (size) changes when you go to different places…"	2	1.5
	May wear a bigger size	"A small is what I usually wear everywhere else…I have to get medium there"	8	5.9
	Not sure about my size	"I am not exactly sure about my size"	2	1.5
	Cut is different depending on brands	"…the cut will be different from different clothes depending on brands"	2	1.5
			28	**20.7**
Concerns with physical comfort	uncomfortable	"It's just really uncomfortable"	2	1.5
			2	**1.5**
Concerns with projecting a correct impression	Project self-image	"look like your image"	2	1.5
	Feel confident about how the garment fits me	"You feel more confident because you know that whatever you buy it will fit your body"	1	.7
	Too revealing	"I don't like to show my cleavage", "too revealing"	3	2.2
	Reveal the body part that I want to hide	"You don't wanna be muffin topping over." "…everyone looks at the stuff that, like of hide that"	4	3.0
	Look weird	"look like an idiot", "looks stupid", look weird on me", "look hideous"	4	3.0
			14	**10.4**
Concerns with inability to try on in online shopping	Fit differently when tried it	"Fits are so different"	3	2.2
	Look different from what I see on the website	Is it gonna the way looks online in the photographs?" "… it looks as good as it shows on the screen."	4	3.0
	Fit differently on me than fits on the model	"How it fits the model on the website is not how it's gonna fit me."	7	5.2
	Have to guess if garment will fit	"I am gonna guessing if this is gonna fit me."	3	2.2

Table 3.2. (continued)

	Have to picture wearing it	"I picture myself wearing it."	3	2.2
	Have a hard time imagining the fit of the garment	"You have to try to attempt to like imagine yourself trying to wear but I just have really hard time with that."	1	.7
	My guess about the fit may not be correct	"Our guess isn't correct."	1	.7
	Cannot depend on the fit shown on the website	"I am a plus size, okay it doesn't really relate to me"	1	.7
	Receive a wrong item	"They could mess up and sent me a wrong pair of jeans", "wrong thing, wrong size or wrong product"	3	2.2
	Would not buy without trying on	"I should try on everything"	3	2.2
			29	**21.5**
Total			**135**	**100**

a. Counted by the number of times it was mentioned in the data
b. Divided the frequency by total descriptors mentioned in the data

Discussion

Ill-fitting garments have serious implications for customer satisfaction and for profits (Paul, 2008). Concerns with fit and accurate sizing are the most important reason that consumers are reluctant to purchase apparel online (Beck, 2003). This study revealed that concerns with fit and size of garments consist of multiple and distinct but interrelated dimensions (see Table 3. 2): (1) concerns with unavailability of size, (2) body image and overall appearance, (3) fit performance, (4) uncertainty about the sizing system, (5) physical comfort, (6) projecting a correct impression, and (7) inability to try on in online shopping.

Concerns with body image and overall appearance, inability to try on in online shopping, and uncertainty about the sizing system are the most significant attribute dimensions associated with consumer's concerns with fit and size of garments. In concerns with body image, the subthemes, "The length of the garment may not fit," "May have to get an alteration," and "May not fit my body proportion" are frequently mentioned by

respondents. Therefore, concerns related to body proportion and length of the garment might be two main concerns with body image in apparel shopping. Respondents, who addressed concerns with the length of the garment mentioned problems with lower body items such as pants and jeans. In addition, female respondents who mentioned concerns with body proportion addressed the issues related to their lower bodies (e.g., disproportion between waist and thighs). These findings are consistent with those of LaBat and DeLong (1990) and Feather, Ford, and Herr (1996). LaBat and DeLong (1990) found that satisfaction with fit of the garment and body cathexis was positively correlated for upper, lower, and total body, but showed a stronger correlation with the lower body, indicating the female respondents, who are happy with their lower bodies tend to be more satisfied with the fit of the garment. Feather et al. (1996) also examined the relationship between uniform body cathexis sites and uniform fit satisfaction among female collegiate basketball players. They found that lower body sites such as hips, pants crotch, and buttocks showed the lowest scores for body and fit satisfaction, while the upper body sites showed higher body and fit satisfaction scores.

Concerns with fit and size of the garment appear to be caused by, to some extent, the ideal body images that apparel companies project. Respondents mentioned that their body shape is different from the ideal body shape and therefore worry that the fashionable clothes, which reflect the ideal body shape, may not fit their body. Fashion companies present their products on ideal figures to maximize the desirability of the product (Tate & Shafer, 1982). The perceived discrepancy between the body and the ideal body appears to influence consumers' information processing related to concern with fit and size of garments in apparel shopping. Individuals' evaluations of their body influences self-esteem, attitudes, and feelings toward their own bodies (Rudd & Lennon, 1994). Particularly, when individuals

perceive a discrepancy between ideal body image and their body image, they experience negative emotional states such as dissatisfaction (Higgins, 1987), and this feeling may affect the consumption of apparel fashion products (Cash & Cash, 1982; Solomon & Douglas, 1985). Therefore, the findings of this study may be helpful to explain the linkage between perceived body ideal self-discrepancy and apparel consumption. This type of concern may be even more problematic in online shopping, where consumers cannot try on the garment. Consumers have to guess the fit and size of garments, and if they think their body does not reflect the ideal body, they may feel a higher degree of risk when shopping for apparel online.

Concerns with uncertainty about the sizing system appeared to be one of the most critical issues, ranking as the third frequently mentioned theme. About one-half of the comments were related to inaccurate and inconsistent sizing systems of apparel stores or brands. Respondents mentioned that even within the same brand or store, the sizing system is often not consistent. In addition, the inconsistent sizing system among different brands may increase concerns about whether the garment would fit well and not too small, or too tight. Although this type of concerns can be an issue in both offline and online shopping contexts, it can be even more serious in online apparel shopping because of the inability to try on garments. Because consumers have experienced problems related to the inconsistent sizing system across and within brands or stores, they may be reluctant to purchase from online stores if they have not purchased in the specific stores before.

The inconsistent sizing system seems to be an intractable, widespread problem in the fashion industry. A report showed that styles from different stores labeled size 10 can range from an eight to a 14 (Burns, 2006). Quality standards for some brands are too tolerant of size variation. In addition, many fashion companies have created their own sizing systems,

such as vanity sizing in which designers make their sizing more generous to make customers feel better about their bodies by wearing a smaller size on the label than they normally wear, or exclusionary sizing where apparel brands downsize garments to exclude larger consumers from wearing the brand to project a certain brand image. Consumers can try on a similar style of garment in different stores and have to buy totally different sizes (Burns, 2006) because the sizes are not standardized across brands. Sizing systems are used as a marketing strategy to create customer loyalty (Rickey, 2007). These sizing systems are not only used to attract customers but also used to keep specific types of consumers away from their store (Rickey, 2007). Some designer labels and fashion brands practice exclusionary sizing to perpetuate the myth that only people with ideal bodies can wear their clothes (Rickey, 2007). However, in this study, it appears that customers feel that they are the victims of vanity and exclusionary sizing.

Respondents perceived concerns and risks in both offline and online apparel shopping, due to the inconsistent sizing systems. Some of them even mentioned they are not exactly sure about their sizes because they have needed different sizes in different stores. Particularly, in online shopping the inconsistent sizing system makes consumers guess their sizes, which may result in consumers' financial or time loss, due to the return process. This finding supports a recent report from SizeUK, a three-year survey conducted in collaboration among the UK government and 17 major British retailers, academics, and technology companies. Over 60 percent of women in the UK admitted that they were unsure of their dress size because of the size variation among stores (Rickey, 2007). Because people tend to believe that something is wrong with their body if fashionable clothes do not fit (McVey, 1984),

exclusionary sizing may provide them a strong motivation to be involved in body management practices such as dieting to fit the garment sizes of certain brands.

The European Union has introduced a universal sizing system that indicates measurements in centimeters. This change is expected to play a role toward improving problems related to vanity and exclusionary sizing in the fashion industry (Rickey, 2007). In addition, developing a standardized sizing system may be essential in the fashion industry when considering globalization; overseas consumers can purchase clothing from retailers' websites, and brands are sold around the world. Consistent, international sizing standards of fashion companies would provide greater opportunities for companies to sell their products in the international market (Paul, 2008) and help them expand their businesses. The risk reduction of standardized sizing may also increase purchases and reduce losses due to avoidable returns and re-orders mailed for free by companies.

Concerns with product performance were also mentioned in a relatively high proportion of the comments. Almost one-half of the comments about this type of concern were associated with whether the garment would fit properly, correctly, precisely, perfectly, or well. Other comments included whether the garment would be too small or tight and whether the material would work fine with the body because the type of fabric used may affect how the garment drapes on the body. This type of concern relates to the findings of concerns with uncertainty about the sizing system because concerns with whether the garment fits well may be associated with the inconsistent and inaccurate sizing system common throughout the apparel industry.

Concerns with the unavailability of sizes appear to be associated with size assortments in apparel stores; certain sizes are carried less frequently or in less volume.

Respondents mentioned they cannot find certain sizes because those are popular sizes and sold out quickly or because those are not average sizes, and, therefore, stores have fewer pieces in stock compared to more popular sizes. In addition, respondents also addressed the reasons they cannot find their sizes in relation to sizing and store organization issues; consumers may have a hard time to find the right size and fit in the store because the fit and size of the garments in the store are not consistent. Particularly, a stock-out situation may increase negative emotions on the part of the consumer, which in turn may negatively influence the consumer's satisfaction and store image (Kim, 2004). According to store image literature, merchandise assortment is one of the main attributes to shape store image (e.g., James, Durand, & Dreves, 1976; Lindquist, 1974-1975), and positive store image is associated with consumer's behavioral intentions such as purchase intentions (e.g., Faircloth, Capella, & Alford, 2001) and willingness to pay a premium price (e.g., Erdem, Swait, & Louviere, 2002). Kunkel and Berry (1968) argued that a consumers' retail store image is formed through their experience with the store. Mazurksy and Jacoby (1986) also stated that store image is shaped by the acquisition of knowledge about the store. Therefore, the failure to find the right fit and size of garments in a store may negatively influence the store image as well as consumers' behaviors or behavioral intentions toward the store.

Concerns with physical comfort were addressed by only two respondents and included statements dealing with bodily discomfort. Literature related to perceived risk in home shopping has identified physical risk as one of the dimensions (e.g., Simpson & Lakner, 1993). Although the low frequency may imply that physical concerns may be the least significant concern related to the fit and size of garments based on the frequency of mention in the interviews, particularly, in online apparel shopping it may be an important

consideration for consumers because of a lack of tactile information and inability to try on garments.

The current study revealed that concerns with fit and size of garments include psychological concerns associated with self-image. Respondents addressed concerns about whether they may not project the self image they want to show other people, and they may not give correct and positive impressions about themselves when wearing garments they buy. The looking-glass self theory (Cooley, 1902) suggested that the self is shaped through the individual's imaginative processes in relation to other people. The self is a reflected self consisting of three elements: (a) the imagination of the individual's appearance to the others, (b) the imagination of the individual's judgment of that appearance, and (c) some type of self-feeling, including pride or mortification (Solomon, 1983, p. 321). In addition, self-image is defined by an estimation of how other people evaluate one's self. This estimated appraisal, both imagined and actual, by others is called "reflexive evaluation" (Solomon, 1983, p. 321). The reflexive evaluation can be intrapersonal (e.g., projecting one's appearance in a garment in front of a mirror and imagining what others will think) and interpersonal (e.g., reactions of others to the garment that the person is wearing). Therefore, in an apparel shopping situation, although consumers do not always receive direct responses from other people, they may imagine themselves wearing the garment and evaluate themselves in the eyes of others; this process may affect the consumer's future adoption and use of products (Solomon, 1983).

Particularly, in the online shopping context, because consumers cannot directly try on or examine products, they may depend on their imaginations to indirectly experience the situation they consume with the products. This imagery process may include reflexive evaluations and facilitate information processing (e.g., evaluation of the garment with respect

to the person's body image). While examining apparel on the websites using visual (product pictures) or verbal (product description) information, consumers may picture themselves to preen in front of a mirror in a specific garment and imagine how they would look in the garment in the eyes of others. They may perceive themselves as other people may evaluate them in the garment. By taking others' roles, the individual may estimate appraisals by others. When consumers are engaged in the reflexive evaluation process, they may consider whether the specific garment appropriately reflects their self-image. They may also deliberate whether the garment would properly show their bodies or improve the attractiveness of their bodies. Because the fit and size of the garment are directly related to the body and the holistic impression of appearance (Hsu & Burns, 2002), concerns with fit and size of garments are more critical in the online apparel shopping environment, which is a body absent environment (Rosa et al., 2006).

Finally, one dimension specifically associated with concerns due to the inability of trying on the garment in online apparel shopping was identified. In online apparel shopping, the inability to examine or try on the product results in perceived risk that is one of the most important reasons customers do not purchase apparel online (Pastore, 2000). Citrin, Stem, Spangenberg, and Clark (2003) also found that the need for tactile information had a significant negative effect on clothing purchases online. In the present study, the main concern in this dimension consisted of the discrepancy between the fit of the garment shown on the website and the actual fit when respondents tried it. In addition, respondents addressed the risks due to guessing or imagining the fit of the garment and losses that might be caused by an incorrect estimation. This type of concern should be interpreted in relation to other dimensions such as concerns with body image and concerns with uncertainty about the sizing

system. E-retailers have used various visual devices (e.g., enlargement, models of various sizes, virtual model) to help consumers imagine the fit of the garment on their bodies by looking at the garment on the model or other visuals. However, because of the discrepancy between the images of the models on the websites and body images of actual consumers, most consumers whose body shapes are different from those of the models may have a difficult time picturing themselves in the garment. In addition, the inconsistent sizing system of stores or brands may make consumer's information processing even more difficult. Therefore, to facilitate consumer's information processing in online apparel websites, it is critical to establish a consistent sizing system as well as use more realistic visual devices.

The concerns with fit and size of garment themes identified in this study were interrelated to each other. Most of the themes were applicable to both offline and online apparel shopping. Consumers' concerns with fit and size of garments appeared to stem from their previous shopping experience in physical stores and were based on knowledge about their bodies. Therefore, concerns with fit and size of garment themes may indicate the issues related to fit and size that apparel retailers confront these days. Thus, the findings of this study provide apparel retailers valuable information about what consumers' concerns with fit and size are and how these concerns are related to current practices in the fashion industry. In addition, this study revealed a unique theme, concerns with inability to try on in online shopping, associated with online apparel shopping. This theme also seemed to be closely associated with other themes and consequences of other concerns with fit and size of garments. Therefore, although consumers' concerns with fit and size of garments are due to an inability to try on the garment, multi-channel apparel retailers may be able to decrease

consumers' concerns with fit and size in online shopping by improving consumers' experience with fit and size in offline stores.

PHASE 2: SCALE DEVELOPMENT

The objective of Phase 2 was to develop scales for quantitatively measuring concerns with fit and size of garments in the context of offline and online apparel shopping. Concerns with fit and size of garments are critical issues when purchasing apparel in general. Because of the unique characteristic of the online shopping environment in which consumers can only experience the product virtually, consumers may feel a higher degree of concerns related to fit and size of garments. In addition, the dimensions of concerns with fit and size of garments in the offline shopping context may be different from those in the online shopping context. Therefore, the part of the study presented in this chapter is an investigation of whether there are any differences between the dimensions of concerns with fit and size of garments in the context of offline and online shopping.

The initial pool of items was created based on the subthemes of concerns with fit and size of garments, collected in Phase 1. The subthemes were expressed in statement format as items that can be rated on a Likert-type scale, indicating the extent to which consumers agree or disagree with each statement. This chapter describes method and results from (1) the process of selection from the initial pool of possible items for each of the concerns with fit and size of garments, (2) pilot tests, including exploratory and confirmatory factor analyses, of the initial item pool to determine the final scale items, and (3) discussion of the scale development process and results.

The scale development process was based on Churchill's (1979) widely used method for multiple-item instrument development. Multi-item scales can reduce measurement error and provide a more robust measure of complex variables by combining multiple individual items. According to Churchill (1979), the first step of scale development is to identify the

conceptual specification of the construct and identify how the domain is operationalized through a review of literature. The second step in the procedure is to generate items that capture the domain as specified. Churchill (1979) suggests that focus group interviews can be advantageous to generating items. Because the domain of concerns with fit and size of garments has not been explored, the first and second steps of scale development were accomplished through a series of focus group interviews. Therefore, the initial pool of 61 items for the construct was drawn from the results of the focus group interviews from Phase 1.

Prior to purifying the measures using data, the items were examined in terms of wording and readability by independent panels including three graduate students. In addition, because the measure would be tested in two different shopping contexts, offline and online shopping, a manual sorting technique was used to identify which items represent concerns with fit and size of garments in offline, online, or both offline and online shopping. Each panel was given a questionnaire containing items and was asked to assign each item to one of the three shopping contexts (Offline, Online, or Both offline and online) depending upon the extent to which they believed that the item reflects the concern in each of the shopping formats. In addition, each panel member was asked to indicate NA (not applicable) if she believed that the item was not appropriate for any of the shopping contexts. As a result of this process, two items were eliminated due to wording issues.

To assess the reliability of the sorting process, the inter-judge reliability between the two judges was calculated using Cohen's Kappa[1] (Cohen, 1960). Kappa has a range from 0

[1] $K = (p_a - p_c)/(1- p_c)$, where p_a is the proportion of agreed on judgments and p_c is the proportion of agreements one would expect by chance

to 1.00, with larger values indicating better reliability. In general, a Kappa higher than .7 is considered satisfactory. Once two panel judges completed the sorting process, they went through a negotiation process for each disagreed-upon item by which either of the categories initially coded by the two judges was selected as the final category if agreement was reached. Table 3.3 shows the degree of agreement between all possible pairs of three judges, with the average of these statistics. As shown in Table 3.3, all of the judge pairs in the sorting process exceeded .7.

Table3.3. Interjudge Reliability Statistics (n = 3)

Judge pairs	Cohen's Kappa
1-2	.78
1-3	.78
2-3	.92
Average	.83

In addition, content (face) validity of the scale was assessed by an expert judge. Content validity refers to the representativeness of the items on the measure as they relate to the entire domain of context being measured (Churchill, 1979) and can be assessed subjectively thorough examination of the instrument (Stratman & Roth, 2002). Through this process, three more items were created if the theme included fewer than three items. For example, two more items ("The garment may look good on my body but may feel uncomfortable" and "The fit of the garment may cause discomfort") were developed for physical concerns because the theme included only one item. Therefore, a total of 62 items were included in the initial pool of the scale.

As a result of the sorting process, two sets of questionnaires were created to test the items for the offline and online shopping contexts. While 62 items were included in the

questionnaire to be rated for the online shopping context, in the offline shopping context, 51 items were included in the questionnaire; 11 items, which specifically reflected concerns with fit and size of garments in the online shopping context were eliminated from the initial pool of items in the offline shopping context, based on the total agreements among the three panel judges. For example, the item, "The fit of the garment may be different from what I see on the picture" addressed individual's concern that the fit of the garment shown on the website may be different when they actually receive and try it on and did not reflect concerns with fit and size of garment in offline shopping.

Method: Pilot Test (Exploratory Factor Analysis)

The objectives of the pilot test for the exploratory factor analysis consisted of: (1) to finalize concerns with fit and size of the garment scale items by reducing the initial pool to a more parsimonious set of items, while maintaining the core constructs addressed by the initial item pool, (2) to explore the dimensions of concerns with fit and size of the garment across different shopping contexts, and (3) to establish the reliability of the dimensions.

Sample

A convenience sample of 137 undergraduate students participated in the pilot test of the initial pool of items related to concerns with fit and size of garments. The sample was recruited from four classes in the Department of Apparel, Educational Studies, and Hospitality Management at Iowa State University on a voluntary basis. The survey announcement was made during the classes, and the response rate was 49 percent. Participants were given extra class credits as an incentive. The sample included 17 male and 120 female students.

Only responses from female respondents (n = 120) were included in the data for further analyses because concerns with fit and size of garments may be different between males and females, and the sample size of males was not big enough to run separate analyses. Therefore, the sample included female students, the majority of whose ages ranged between 20 and 22 (60 percent) with the mean age of 20 years old. Most participants were Caucasian American (91 percent) and about 58 percent of respondents were sophomores or juniors. Descriptive statistics for the demographic items of the pilot test sample are shown in Table 3.4.

Instrument

A self-administered questionnaire was used for the pilot test. The questionnaire consisted of two parts (see Appendix H for the questionnaire). Respondents were asked to answer the questions for two different shopping contexts: offline (Part1) and online (Part 2). In the beginning of the each part, a scenario that explains each shopping context, was provided. After reading the scenario, participants were instructed to rate level of agreement with each item according to the degree to which they believed that each item reflected concern with fit and size of garments in offline or online shopping contexts. A 5-point Likert-type scale was used with endpoints of strongly disagree (1) and strongly agree (5) with a NA (not applicable) option. Four different versions of the questionnaire were created, randomizing the order of the questions to avoid the order bias that might be caused by respondents becoming tired from completing a long questionnaire. By randomizing the order of the items in the questionnaire, order bias was expected to be erased across respondents, resulting in unbiased mean responses (Teas, 1994).

Table 3.4. Concerns with Fit and Size of the Garment Pilot Test Sample Characteristics for Exploratory Factor Analysis

	f	%	*M*	*SD*
Age:	(*n* = 120)		20.4	1.9
18 years old	8	6.7		
19 years old	31	25.8		
20 years old	34	28.3		
21 years old	27	22.5		
22 years old	11	9.2		
23 years old	6	5.0		
24 years old	1	.8		
28 years old	1	.8		
34 years old	1	.8		
School of year:	(*n* = 120)			
Freshman	27	22.5		
Sophomore	32	26.7		
Junior	38	31.7		
Senior	23	19.2		
Ethnicity:	(*n* = 120)			
African American	2	1.7		
Caucasian American	109	90.8		
Hispanic American	5	4.2		
Asian American	4	3.3		
Major:	(*n* = 120)			
Textiles and Clothing	95	79.2		
Art	2	1.7		
Communication	3	2.5		
Journalism	5	4.2		
Marketing	5	4.2		
Other	10	8.3		
Online apparel shopping experience :	(*n* = 120)			
Yes	117	97.5		
No	3	2.5		

Demographic questions, including gender, age, school year, ethnicity, and major were asked at the end of the questionnaire. In addition, one question asking respondent's online apparel shopping experience was included. Participants' demographic information is presented in Table 3.4.

Data Collection Procedure

After obtaining approval from the Institutional Review Board (IRB) with regard to the use of human subjects (see Appendix F), the questionnaire, using a paper-and-pencil form, was distributed to students attending four classes in the Department of Apparel, Educational Studies, and Hospitality Management at Iowa State University. The questionnaire included a cover letter and consent form (see Appendix G). The researchers mentioned the purpose of the study, assured confidentiality and anonymity, and pointed out that their participation was voluntary. Students were given three to five days to complete the questionnaire. The consent forms were separated from the questionnaire before collection. Extra class credit was given to those students who participated.

Data Analysis

In this part of the pilot test, the analysis of the data included descriptive statistics and exploratory factor analysis using SPSS 13.0. First, descriptive statistics were calculated to examine the general properties of the variables. Descriptive statistics including means, standard deviations, and minimum and maximum scores were used to examine the central tendency of the variables. Skewness and kurtosis statistics, along with their standard errors and critical ratios, were obtained to investigate the univariate normality of the variables. Skewness and kurtosis critical ratios were calculated by dividing corresponding statistics by their standard errors. Skewness and kurtosis critical ratios smaller than 2 were considered to indicate a symmetric and mesokurtic distribution, respectively.

Exploratory factor analysis was performed using principle components factor analysis with varimax rotation. The varimax procedure, which is one form of orthogonal rotation, attempted to achieve simple structure, wherein each of the measures tends to load highly on

some of the factors and have low loadings on other factors. Three steps were taken to control the appropriate number of factors and items to explain concerns with fit and size of garments. First, an initial solution was based on Kaiser's Criterion, which involves extracting factors for which eigenvalues are greater than 1.0. Then, graphical scree plots were examined to compare the number of factors with the initial solution using Kaiser's Criterion. Finally, the conceptual clarity of each factor explained by the items with high loadings on the factor was considered to test alternative solutions with fewer numbers of factors to be extracted. For determining items consisting of each factor, only those with a factor loading, .50 (Kline, 1998) or higher were included, and items were excluded if they cross loaded on two or more factors. Besides these criteria, the reliability of each factor was calculated using Cronbach's *alpha*. A Cronbach *alpha* value of .70 or higher was considered to indicate sufficient reliability of the multi-item score (Nunnally & Bernstein, 1994). Items within a factor that lowered the reliability below .70 were excluded from the factor scores and final pool of items.

Results: Pilot Test (Exploratory Factor Analysis)

Descriptive statistics of concerns with fit and size of garment items, in both offline and online shopping contexts, are presented in Appendix I. Although evidence of nonnormality in data was found, no adjustment techniques such as transformations or deleting outliers were performed. The transformation of only some of the items would make it difficult to interpret the contribution of the items to the construct when compared to other items not transformed. In addition, when considering the small sample size (n = 120), deleting outliers might result in losing information. Therefore, nonnormality in data should be taken into account when the results are interpreted.

No imputation was performed for the missing data because imputation can distort coefficients of association and correlations of relating variables (Kalton & Kasprzyk, 1982). In addition, a listwise deletion technique, which omits cases that do not have data on all variables in the variables list of the current analysis, was not used, considering the small sample size (n = 120). The 'NA' (not applicable) responses were re-coded as missing data. To avoid the multicollinearity issue, Pearson correlation coefficients among items were calculated to examine if there were any items that were highly correlated, above .90, with other items. The results showed that none of the items were correlated with other items .90 or above.

Exploratory Factor Analysis Results of Concerns with Fit and Size of Garment Items in the Offline Shopping Context

Fifty-one concerns with fit and size of garment items tested in the context of offline shopping were subjected to factor analysis. Six factors were yielded as an initial solution. Eighteen items were excluded due to low factor loadings (< .50) and cross loading issues. One of the factors included only two items (My size may change when I go to a different store" and "The cut of the garment may be different in the store compared to other stores"). The factor was excluded because the reliability of the combined items (.60) were lower than .70. Two items ("The length of the garment may not be fit me" and "I may feel fat when I try on the garment") were eliminated from the first factor to increase the reliability of the items. In addition, three items ("I may have to make an additional effort to find the right size and fit of a garment in the store," "I may have a hard time to find a right size and fit in the store," and "I may have to get alterations of the garment") were excluded from the pool of

the items because of the lack of clarity of the meaning among the items. Therefore, another factor analysis with 26 items was performed, and five factors were produced (see Table 3. 5).

The first factor, consisting of eight items with an eigenvalue of 4.96 and Cronbach *alpha* value of .93, was named "Concerns with body image and overall appearance" because the items of this factor reflected the consumer's concerns with fit and size of garments in relation to their body image (e.g., "look bigger") and overall appearance ("look good," "look nice," and "too tight"). The factor accounted for 19 percent of the variance in concerns with fit and size of garments.

The second factor, which included four items with an eigenvalue of 3.87 and Cronbach *alpha* value of .93, was named "Concerns with product performance" because the items for this factor addressed consumers' concerns about whether the garment fit correctly and performed well on their bodies (e.g., "fit properly," "fit right," and "fit perfectly"). This factor accounted for 15 percent of the variance in the scale.

The third factor, labeled as "Concerns with unavailability of size", consisted of five items, reflecting consumers' concerns that they might not find a correct size or fit of a garment in an apparel store (e.g., "not find my size", "not carry my size", "not find a garment that fits my body"). The eigenvalue of the factor was 3.87, Cronbach *alpha* value was .90, and 15 percent of the variance in the scale was explained by the second factor.

A total of six items was identified for the fourth factor, labeled as "Concerns with projecting a correct impression." The items for this factor addressed consumer's concerns regarding whether they project self image when wearing a garment that they want to show to other people or give other people a correct and positive impression about themselves in a garment (e.g., "give other people a positive impression" and "look weird"). The eigenvalue

of the factor was 3.85, Cronbach *alpha* value was .87, and 15 percent of variance in the scale was explained by the third factor.

Finally, the fifth factor, which included three items with an eigenvalue of 2.26 and a Cronbach *alpha* value of .78, was labeled as "Concerns with uncertainty about the sizing system" because the items reflected consumer's concerns related to the inconsistent or inaccurate sizing system of an apparel store or brand (e.g., "The sizing system of the store may not be accurate," and "The sizes of the garments in the store may not be consistent"). This factor explained 9 percent of variance in the scale.

Therefore, a total of 26 items from five factors explained 72 percent of the variance in the concerns with fit and size of garments scale in the offline shopping context.

Exploratory Factor Analysis Results of Concerns with Fit and Size of the Garment Items in the Online Shopping Context

With the online shopping data, exploratory factor analysis was performed to examine the underlying dimensions of 62 concerns with fit and size of the garment items. Eight factors were extracted through the initial solution. Twenty-four items were eliminated due to low factor loadings (< .50) and cross-loading issues, and three items were excluded to increase the reliability of factors. Analogous to the offline shopping context, three items ("I may have to make additional effort to find the right size and fit of a garment in the store," "I may have a hard time to find a right size and fit in the store," and "I may have to get alterations of the garment") were excluded because of the lack of conceptual clarity among items. Therefore, another factor analysis was performed with 32 items, and seven factors were produced. The results are shown in Table 3.6.

Table 3.5. Results of Exploratory Factor Analysis for the Concerns with Fit and Size of Garment Items in the Offline Shopping Context with 5 Factors and 26 Items: Initial Factor Solution

	Factor loading	Eigenvalue	Percent of variance	Cronbach's *alpha*
Factor 1: Concerns with Body Image and Overall Appearance		4.96	19.07	.93
1. The garment may not look good on me.	.762			
2. The garment may not look nice on me.	.748			
3. I may feel uncomfortable in the garment.	.684			
4. The garment may not fit well.	.706			
5. The size of the garment may not fit me.	.752			
6. I may look bigger (or wider) in the garment.	.718			
7. The garment may be too tight on me.	.749			
8. The garment may be too fitting to me.	.690			
Factor 2: Concerns with Product Performance		3.87	14.89	.93
1. The size may not fit properly.	.813			
2. The garment may not fit right.	.800			
3. The fit of the garment may not be precise.	.854			
4. The garment may not fit perfectly.	.753			
Factor 3: Concerns with Unavailability of Size		3.87	14.87	.90
1. I may not find my size in the store.	.855			
2. I may not find the exact size I am looking for in the store.	.752			
3. The store may not carry my size.	.838			
4. My body may not fit the garments selling in the store.	.789			
5. I may not find a garment that fits my body.	.754			
Factor 4: Concerns with Projecting a Correct Impression		3.85	14.82	.87
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.730			
2. The garment may not give other people a positive impression about me.	.887			
3. The garment may not give other people the right impression about me.	.890			
4. I may look weird in the garment.	.637			
5. The garment may be too revealing.	.617			
6. I may not project the self image that I want to show other people when wearing the garment.	.593			
Factor 5: Concerns with Uncertainty about the Sizing System		2.26	8.70	.78
1. The sizing system of the store may not be accurate.	.763			
2. The sizes of the garments in the store may not be consistent.	.797			
3. I don't trust the sizing system of the store.	.793			
Total			**72.36**	

The first factor, which consisted of five items with an eigenvalue of 4.26 and Cronbach *alpha* value of .92, was named "Concerns with overall appearance" because the items of this factor dealt with the consumer's concerns about whether the garment looked good on his or her body and improved its appearance (e.g., "look good"). The factor accounted for 13 percent of the variance in concerns with fit and size of garments.

The second factor, labeled as "Concerns with unavailability of size," consisted of five items addressing consumer's concerns that they might not find a correct size and fit of garment in an apparel online store. The eigenvalue of the factor was 4.06, Cronbach *alpha* value was .91, and 13 percent of variance in the scale was explained by this factor.

A total of six items was identified for the third factor, labeled as "Concerns with projecting a correct impression." The items of this factor reflected consumer's concerns regarding whether she projects the self image that she wants to show to other people and give other people a positive impression in the garment (e.g., "give other people a positive impression" and "look weird"). The eigenvalue of the factor was 3.85, Cronbach *alpha* value was .88, and 12 percent of variance in the scale are explained by the third factor.

The fourth factor, which consisted of four items with an eigenvalue of 3.27 and Cronbach *alpha* value of .91, was named "Concerns with product performance." The items for this factor addressed the consumer's concerns about whether the garment fit correctly and performed well with her body. This factor accounted for 10 percent of the variance in the scale.

A total of four items were identified for the fifth factor, named "Concerns with imagining the fit/size in online shopping" with an eigenvalue of 2.81 and a Cronbach *alpha* value of .87. These items dealt with consumers' concerns with imagining themselves wearing

the garment and consumers' perceived risk about whether their guess about the fit and size of the garment may not be correct. This factor explained 9 percent of the variance in the scale.

The sixth factor, which included five items with an eigenvalue of 2.81 and a Cronbach *alpha* value of .79, was labeled as "Concerns with an inability to try on in online shopping" because the items reflected consumers' concerns about whether the fit of the garment may be different from what they see on the website (e.g., "The fit of the garment may be different from what I see in the picture," "The garment may fit differently on me than it fits on the model"). This factor explained 9 percent of variance in the scale.

Finally, the seventh factor consisted of three items and was named "Concerns with uncertainty about the sizing system" because the items addressed consumer's concerns about the inaccurate and inconsistent sizing system of an online apparel store. The eigenvalue for this factor was 1.91, Cronbach *alpha* value was .77, and the variance explained by the factor was 6 percent. Therefore, a total of 32 items from seven factors explained 72 percent of the variance in the concerns with fit and size of garment scale in the online shopping context.

The objective of the pilot test was to produce a parsimonious set of items that maintained important information addressed by the initial pool of items and that were useful in the quantitative part of this study. Therefore, although the initial solution of the exploratory factor analysis yielded seven factors, based on the scree plot, a four-factor solution was tested. In addition, a 5-factor solution was performed to compare the constructs with the 4-factor solution. As a result of the comparison between 4- and 5-factor solutions, in the 4-factor solution, two items from the first factor ('Concerns with overall appearance') were eliminated because of cross-loading on multiple factors. When another factor analysis was performed without the two items, the remaining three items showed somewhat low

factor loadings (.576-.662). Therefore, the 5-factor solution was considered to be the most parsimonious, retaining all important information captured in the concerns with fit and size of garment items in the online shopping context. The results of the 5-factor solution are shown in Table 3.7.

The first factor included five items and obtained an eigenvalue of 3.99 and Cronbach *alpha* value of .92. Named "Concerns with overall appearance," this factor accounted for 17 percent of the variance in the measure. The second factor, labeled "Concerns with unavailability of size," consisted of five items. The eigenvalue of the factor was 3.82, Cronbach *alpha* value was .91, and 16 percent of variance in the scale was explained by this factor. The third factor, consisting of five items, was labeled "Concerns with projecting a correct impression." The eigenvalue of the factor was 3.75, Cronbach *alpha* value was .88, and 16 percent of variance in the scale was explained by this factor. The fourth factor included five items. It had an eigenvalue of 2.84 and a Cronbach *alpha* value of .79. Labeled as "Concerns with an inability to try on in online shopping," the factor explained 12 percent of variance in the scale. Finally, a total of three items were identified for the fifth factor, named "Concerns with imagining fit/size in online shopping." The factor had an eigenvalue of 2.41 and a Cronbach *alpha* value of .84. This factor explained 10 percent of the variance in the scale.

Therefore, a total of 24 items from five factors explained 70 percent of the variance of concerns with fit and size of garments measured in the online shopping context.

Table 3.6. Results of Exploratory Factor Analysis for the Concerns with Fit and Size of the Garment Items in the Online Shopping Context with 7 Factors and 32 Items: Initial Factor Solution

	Factor loading	Eigenvalue	Percent of variance	Cronbach's *alpha*
Factor 1: Concerns with Overall Appearance		4.26	13.32	.92
1. The garment may not look good on me.	.784			
2. The garment may not look nice on me.	.792			
3. I may feel uncomfortable in the garment.	.783			
4. The garment may not fit well.	.813			
5. The size of the garment may not fit me.	.728			
Factor 2: Concerns with Unavailability of Size		4.06	12.7	.91
1. I may not find my size in the store.	.822			
2. I may not find the exact size I am looking for in the store.	.783			
3. The store may not carry my size.	.882			
4. My body may not fit the garments selling in the store.	.793			
5. I may not find a garment that fits my body.	.787			
Factor 3: Concerns with Projecting a Correct Impression		3.85	12.02	.88
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.695			
2. The garment may not give other people a positive impression about me.	.866			
3. The garment may not give other people the right impression about me.	.890			
4. I may look weird in the garment.	.636			
5. The garment may be too revealing.	.655			
6. I may not project the self image that I want to show other people when wearing the garment.	.621			
Factor 4: Concerns with Product Performance		3.27	10.22	.91
1. The size may not fit properly.	.691			
2. The garment may not fit right.	.688			
3. The fit of the garment may not be precise.	.746			
4. The garment may not fit perfectly.	.686			
Factor 5: Concerns with Imagining Fit/Size in Online Shopping		2.81	8.70	.81
1. Shopping in the store, I may have a hard time picturing myself wearing the garment.	.830			
2. I may have a hard time imagining the fit of the garment shopping in the store.	.780			
3. My guess about the garment fit may not be correct when shopping in the store.	.549			
4. I am not sure what size I should wear when shopping in the store.	.727			

Table 3.6. (continued)

Factor 6: Concerns with Inability to Try on in Online Shopping		2.81	8.78	.79
1. The fit of the garment may be different from what I see on the picture.	.678			
2. The garment on the picture may look different when I try it on at home.	.624			
3. The garment may fit differently on me than it fits on the model.	.633			
4. Depending on brands, the garment fit may be different.	.765			
5. The garment may not fit all body shapes and sizes.	.566			
Factor 7: Concerns with an Uncertainty about the Sizing System		1.91	5.97	.77
1. The sizing system of the store may not be accurate.	.669			
2. The sizes of the garments in the store may not be consistent.	.771			
3. I don't trust the sizing system of the store.	.706			
Total			**71.78**	

Table 3.7. Results of Exploratory Factor Analysis for the Concerns with Fit and Size of the Garment Items in the Online Shopping Context with 5 Factors and 24 Items

	Standardized Factor loading	Eigenvalue	Percent of variance	Cronbach's *alpha*
Factor 1: Concerns with Overall Appearance		3.99	16.62	.92
1. The garment may not look good on me.	.808			
2. The garment may not look nice on me.	.805			
3. I may feel uncomfortable in the garment.	.708			
4. The garment may not fit well.	.835			
5. The size of the garment may not fit me.	741			
Factor 2: Concerns with Unavailability of Size		3.82	15.92	.91
1. I may not find my size in the store.	.833			
2. I may not find the exact size I am looking for in the store.	.805			
3. The store may not carry my size.	.876			
4. My body may not fit the garments selling in the store.	.820			
5. I may not find a garment that fits my body.	.808			
Factor 3: Concerns with Projecting a Correct Impression		3.75	15.63	.88
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.703			
2. The garment may not give other people a positive impression about me.	.865			
3. The garment may not give other people the right impression about me.	.887			
4. I may look weird in the garment.	.642			
5. The garment may be too revealing.	.645			
6. I may not project the self image that I want to show other people when wearing the garment.	.645			
Factor 4: Concerns with Inability to Try on in Online Shopping		2.84	11.83	.79
1. The fit of the garment may be different from what I see on the picture.	.645			
2. The garment on the picture may look different when I try it on at home.	.641			
3. The garment may fit differently on me than it fits on the model.	.648			
4. Depending on brands, the garment fit may be different.	.768			
5. The garment may not fit all body shapes and sizes.	.688			

Table 3.7. (continued)

Factor 5: Concerns with Imagining Fit/Size in Online Shopping		2.41	10.06	.84
1. Shopping in the store, I may have a hard time picturing myself wearing the garment.	.859			
2. I may have a hard time imagining the fit of the garment shopping in the store.	.892			
3. My guess about the garment fit may not be correct when shopping in the store.	.714			
Total			**70.06**	

Method: Pilot Test (Confirmatory Factor Analysis)

The objectives of this part of the pilot test were to finalize the pool of items measuring concerns with fit and size of garments in the context of offline and online shopping, and to establish the construct and criterion validity of the finalized measure as well as reliability of the dimensions. In addition, the fit indices of different factor solutions were compared to verify if the factor-solutions chosen for the offline and online shopping contexts were the best models in terms of fit indices, using a confirmatory factor analysis technique.

Sample

A random sample, including 3,000 female and 3,000 male students, was contacted for data collection. A list of 6,000 students was randomly generated from the pool of all students enrolled in Iowa State University at the time of data collection. The list of email addresses was obtained through the University's Office of the Registrar. For the offline shopping questionnaire, a total of 198 responses were collected, resulting in a 6.6 percent response rate. Of these responses, 160 were usable; 38 respondents who did not complete the questionnaire were removed from the sample. For the online shopping questionnaire, a total of 156 responses were acquired, resulting in a 5.2 percent response rate. Of these responses, 129

were usable, and 27 responses were eliminated from the data because of incomplete items. In order to be consistent with the exploratory factor analysis, only responses from female respondents were included in the confirmatory factor analysis. Therefore, a total of 116 responses were included for the offline shopping context; a total of 101 responses were included for the online shopping context. In the offline shopping context, about half of the respondents' ages ranged between 20 and 23 (49 percent) with the mean age of 24 years old. The majority of the respondents were Caucasian American (92 percent). About 51 percent of respondents were junior and seniors and 43 percent of respondents were graduate students. In the online shopping context, about 54 percent of respondents' ages were between 20 and 23. Most respondents were Caucasian American (85 percent). About 55 percent of respondents were junior and seniors and about 34 percent of them were graduate students. The characteristics of samples are shown in Table 3.8.

Instrument

A self-administered web-based survey was used for the pilot test to perform the confirmatory factor analysis. Two different versions of the questionnaire were created to test dimensionality of the concerns with fit and size of garment concept developed from Phase 1 for offline and online shopping contexts (Appendix K). While the pilot test for the exploratory factor analysis used within-subjects (each subject answered the same set of questions for the offline and online shopping contexts), the pilot test for the confirmatory factor analysis used between-subjects (each subject answered questions either for the offline or online shopping context). This procedure was adopted to avoid random errors which might be caused when respondents had to answer the same questions twice for two different shopping contexts in one survey. In addition, some of the items that were revealed in the

offline shopping context were reworded to more specifically reflect concerns with fit and size of the garments in the online shopping context (e.g., “I may have a hard time to find a right size and fit in the store” was rewarded as: “I may have a hard time to find a right size and fit in the website”).

A total of 51 concerns with fit and size of garment items were tested for the offline shopping context, while a total of 62 items were tested for the online shopping context. In addition, two items [“In general, I am concerned about the fit and size of the garment when shopping for apparel (online)” and “The fit and size of the garment is one of the biggest concerns when I shop for apparel (online)”] were included to test criterion validity (see Appendix K). These items were created for the present study to measure the general concern with fit and size of garments in both shopping contexts. The items were measured using a 5-point Likert-type scale with endpoints of strongly disagree (1) and strongly agree (5). Demographic questions, including gender, age, school year, ethnicity, and major were asked in the final section of the questionnaire. In addition, two questions asking about respondent’s online apparel shopping experience were included (see Table 3.8).

Table 3.8. Concerns with Fit and Size of the Garment Pilot Test Sample Characteristics for Confirmatory Factor Analysis

	Offline shopping context		Online shopping context	
	f	%	*f*	%
Gender:	(*n* = 116)		(*n* = 101)	
Female	116	100	101	100
Age:	(*n* = 116)		(*n* = 101)	
18 years old	6	5.2	4	4.0
19 years old	8	6.9	8	7.9
20 years old	17	14.7	21	20.8
21 years old	14	12.1	13	12.9
22 years old	14	12.1	12	11.9
23 years old	12	10.3	8	7.9
24 years old	10	8.6	10	9.9
25 years old	3	2.6	7	6.9
26 years old	7	6.0	5	5.0
27 years old	5	4.3	3	3.0
28 years old	3	2.6	1	1.0
29 years old	5	4.3	2	2.0
30 years old or older	12	10.3	7	6.9
School of year:	(*n* = 116)		(*n* = 101)	
Freshman	5	4.3	2	2.0
Sophomore	9	7.8	10	9.9
Junior	21	18.1	21	20.8
Senior	38	32.8	34	33.7
Graduate	43	37.1	34	33.7
Ethnicity:	(*n* = 116)		(*n* = 101)	
African American	6	5.2	0	0
Caucasian American	92	79.3	86	85.1
Latino/Hispanic American	3	2.6	6	5.9
Native American	0	0	1	1.0
Asian American	3	2.6	2	2.0
Other	12	10.3	6	5.9
Major:				
Accounting	4	3.4	1	1.0
Architecture	4	3.4	0	0
Business	4	3.4	2	2.0
Communication	5	4.3	1	1.0
Computer Science	4	3.4	0	0
Elementary Education	5	4.3	2	2.0
Genetics	3	2.6	5	5.0
Graphic Design	3	2.6	0	0
Marketing	4	3.4	2	2.0
Mathematics	3	2.6	1	1.0

Note. Offline shopping: age (*M* = 24.2, *SD* = 6.36); Online shopping: age (*M* = 23.5, *SD* = 6.05)

Table 3.8. (continued)

Psychology	3	2.6	4	4.0
Textiles and Clothing	3	2.6	6	5.9
other	71	61.2	77	76.2
In a typical month, how often do you purchasing clothing?	(n = 116)		(n = 101)	
None	13	11.2	10	9.9
1-2 times	73	62.9	64	63.4
3-4 times	21	18.1	19	18.8
5-6 times	7	6.0	4	4.0
7-8 times	1	0.9	3	3.0
9-10 times	1	0.9	1	1.0
How much money did you spend for clothing purchases over the past 30 days?	(n = 159)		(n = 101)	
$0-$75	53	45.7	45	44.6
$76-$150	30	25.9	35	34.7
$151-$225	15	12.9	13	12.9
$226-$300	8	6.9	7	6.9
$301-$375	6	5.2	1	1.0
$376-$450	2	1.7	0	0
$451-$525	2	1.7	0	0
$526-$600	0	0	0	0
More than $600	0	0	0	0

Note. Offline shopping: age (M = 24.2, SD = 6.36); Online shopping: age (M = 23.5, SD = 6.05)

Data Collection Procedure

An approval from the Institutional Review Board (IRB) with regard to the use of human subjects (see Appendix F) was obtained for the pilot test. The data were collected using a web-based, self-administered survey. A recruiting email containing a letter of research introduction with consent elements and distribution of the survey URL to respondents (see Appendix G). Because two different websites were developed for the offline and online shopping questionnaire, 3,000 emails were distributed with the URL of the offline shopping questionnaire, and another 3,000 emails were distributed with the URL of the online shopping context.

Confidentiality and anonymity were assured, and voluntary participation was solicited in the email. Because this survey was conducted online, participants were considered to agree to participate in the study if they clicked the survey URL to move to the questionnaire after reading the email. To encourage research participation, a drawing of 10 participants to each receive a $20 retail store gift certificate was used as an incentive.

On the first page of the survey, participants read a statement defining the specific shopping context upon which their answers would be based [e.g., "Imagine that you visit an APPAREL RETAIL STORE to buy your new summer clothes" (offline context) and "Imagine that you visit an APPAREL STORE WEBSITE to buy your new summer clothes" (online context)]. After reading the scenario, participants were instructed to rate each item according to the degree to which they believed that each item reflected a concern with fit and size of garments in the offline or online shopping contexts. They also were asked to answer questions related to their demographic characteristics.

On the final questionnaire page, those who wanted to be entered in the random drawing for gift certificates were instructed to provide their email address and name in a textbox. Once the participants completed the online questionnaire page, they were instructed to click on the "Submit your survey", which led them to the Thank-you page.

Data Analysis

First, descriptive statistics were calculated using SPSS 16.0 to examine the general properties of the variables entered in the confirmatory factor analysis. Descriptive statistics consisted of means, standard deviations, and minimum and maximum scores of variables. In addition, skewness and kurtosis statistics and their standard errors and critical ratios were calculated. As a method to deal with missing data, a listwise deletion technique, which omits

cases that do not have data on all variables in the variables list of the current analysis, was used. Although researchers have reported that listwise deletion will have biased parameters and standard errors when there is a great amount of missing data, the technique has been the most common method of dealing with missing data in structural equation modeling (SEM) (Yuan & Bentler, 2000) because of the need for data that provides a complete set of fit indices.

In this portion of the pilot test the measurement models, consisting of the factors and their indicators finalized through the exploratory factor analysis, were separately specified using LISREL 8.7. Simultaneous maximum-likelihood-estimation procedure was used to test the measurement models. All factors were allowed to be correlated among each other, and all errors were uncorrelated.

To evaluate the model fit, parameter estimates and standard errors were examined. The *chi*-square test result, root mean square error of approximation (RMSEA), normed fit index (NFI), incremental index of fit (IFI), Tucker-Lewis index (TLI), and comparative fit index (CFI) were examined for overall goodness of fit of the model. In SEM, the model fitting process is used to determine the goodness of fit between the hypothesized model and the sample data; the researcher specifies a model and then uses the sample data to test the model.

Because the null hypothesis tested is that the hypothesized model holds in the population, the hypothesized model will be rejected if the result of the *chi*-square test is significant. However, according to Jöreskog and Sörbom (1993), the *chi*-square should be considered as more a measure of fit than as a strict test statistic because the assumption—the hypothesized model holds exactly in the population—is unrealistic in most empirical

research. In addition, the *chi*-square test statistics tend to be sensitive to sample size so that the correct model can be rejected when the sample size is small or large (Bagozzi & Yi, 1988; Bollen, 1989). Therefore, model fit should be determined to be appropriate based on the RMSEA and other fit indices. According to Browne and Cudeck (1992), a RMSEA estimate of .05 or smaller is considered to indicate a close fit of the model; those between .05 and .08 indicate a fair fit; those between .08 and .10 indicate mediocre fit; and those greater than .10 indicate an unacceptable fit. Incremental indices such as NFI, IFI, and CFI show the improvement in fit of the hypothesized model to a baseline model, which is a model with all indicators uncorrelated. The NFI tends to underestimate fit in small samples and, therefore, Bentler (1990) revised NFI to take sample size into account and suggested the CFI (Byrne, 1998). IFI was developed by Bollen (1989) to deal with the issues of parsimony and sample size which were known to be associated with the NFI and to take degrees of freedom into account (Byrne, 1998). Values for NFI, IFI, and CFI range from 0 to 1 and are based on the comparison of a hypothesized model with the independence model. Although a model with a NFI or CFI value greater than .90 has long been considered as a well-fitting model (Byrne, 1998), in the present study, NFI, IFI, and CFI of .95 or greater were considered to indicate a good fit based on the revised cutoff suggested by Hu and Bentler (1999).

Reliability and Validity Analysis

Reliability is one of the most important elements in assessing the quality of the construct measures (Churchill, 1979) and is a necessary condition for scale validity. The reliability or internal consistency among individual indicators for a factor was examined using Cronbach *alpha* coefficient. Cronbach *alpha* value of .70 or higher was considered to indicate sufficient reliability of the items (Nunnally & Bernstein, 1994). In addition,

construct reliability was calculated based on the recommendation of Fornell and Larcker (1981).

In order to establish construct validity of the scale, convergent and discriminant validity of the factors was examined. Convergent validity refers to "the extent to which it [a scale] correlates highly with other methods designed to measure the same construct" (Churchill, 1979, p. 70). One method of testing convergent validity is examining the sign of the factor loadings of the items on their targeted latent variables in the measurement model (Krause, Scannell, & Calantone, 2000). If each factor loading is in the anticipated direction and magnitude and is significant at $p < .50$, each scale is considered to display convergent validity. Squared multiple correlation (SMC) was examined to assess the convergent validity; high squared multiple correlations (SMC > .50) are indications of convergent validity (Anderson & Gerbing, 1988). In addition, variance of each dimension was calculated as suggested by Fornell and Larcker (1981); if the variance is less than .50, the variance due to measurement error is larger than the variance explained by the construct. Consequently, the validity of the individual indicators and the construct may be problematic.

Discriminant validity refers to the uniqueness of the constructs; the correlation between two scales measuring two different constructs should not be high (Pedhazur & Schmelkin, 1991). Discriminant validity can be assessed, using a *chi*-square difference test between each pair of constructs [unconstrained model (one-factor) and constrained model (two-factor)]. A statistically significant *chi*-square difference ($p < .001$) between two models indicates two distinct constructs (Anderson & Gerbing, 1988).

Criterion validity is established when a measure has "an empirical association with some criterion or 'gold standard'" (DeVellis, 2003, p. 50). Either concurrent or predictive

validity can be used to ensure criterion validity (McMillan & Schumacher, 1997; Nunnally & Bernstein, 1994). Concurrent validity, which indicates criterion validity through concurrent evidence, is demonstrated when a new measure highly correlates with another existing scale that measures the same or related construct. On the other hand, predictive validity, as evidence of criterion validity is assessed when a scale predicts a criterion measure that is expected to occur as a result of the construct addressed by the scale. In the pilot test, concurrent validity was assessed by comparing correlations between summated scores of all indicators of each concerns with fit and size of garment factor and the criterion variable scores (i.e., the summated scores of general fit and size of garment items).

In this part of the pilot test, the sample size of 116 and 101 for the offline and online shopping contexts, respectively, were used to perform the confirmatory factor analyses. According to Michell (1993) and Stevens (1996), when using a SEM technique, the sample size should be 10 to 20 times as many cases as indicators. Therefore, considering the small sample size, the results of the confirmatory factor analysis such as fit indices and *chi*-square statistics should be interpreted with caution.

Results: Pilot Test (Confirmatory Factor Analysis)

For the two sets of data for offline and online shopping, evidence for nonnormality was detected. However, no adjustment methods such as transformations or deleting outliers were employed for the same reasons addressed for the exploratory factor analysis. In addition, for nonnormal distributions, the maximum likelihood estimation is considered to provide fairly accurate parameter estimates (Curran, West, & Finch, 1996). The maximum likelihood estimation is based on the assumption that the distribution of the data is multivariate normal (Russell, 2002). Although the violation of normality assumption increases the value of the

chi-square statistic and the standard errors associated with the parameter estimates (Russell, 2002), parameter values themselves are typically not influenced. However, the evidence of nonnormality in the data should be taken into account when interpreting the results.

Confirmatory Factor Analysis Results of Concerns with Fit and Size of Garment Items for the Offline Shopping Context

A confirmatory factor analysis, using 26 indicators and five latent variables, was performed to finalize items for the concerns with fit and size of garments measure for offline shopping. As a result of confirmatory factor analysis, the *chi*-square test rejected the hypothesis of perfect fit ($\chi^2 = 750.02$. $df = 289$, $p < .001$). However, as mentioned, the *chi*-square test should be considered as a measure of fit rather than as a strict test statistic. The model showed an unacceptable fit based on the RMSEA estimate of .12, the NFI of .88, CFI of .92, and IFI of .92. Although it is possible that the poor fit of the hypothesized model might be caused by the small sample size, the modification indexes were examined for the respecification of the model for fit improvement. A modification index is computed for each fixed and constrained parameter (coefficient) in the model and indicates the decrease in *chi*-square if the two error terms of indicators are allowed to correlate (Jöreskog & Sörbom, 1993). Anderson and Gerbing (1988) suggested four possible ways to respecify a confirmatory factor analysis model: (1) relating the indicators to a different factor, (2) removing the indicator from the model, (3) relating the indicator to multiple factors, and (4) having measurement errors correlated. However, because correlating the errors of indicators is rarely theoretically justified and is unlikely to replicate, the method is among the most problematic types of post hoc modifications. Therefore, in the present study, based on the maximum modification indexes, one of the items was removed if correlating the errors of

two indicators appeared to improve the model fit. The result of a series of confirmatory factor analysis revealed that eliminating four indicators one at a time reasonably improved the model fit in terms of RMSEA, NFI, CFI, and IFI. Table 3.9 shows the improvement of fit indices when each item was removed from the full model with 26 indicators. Therefore, a hypothesized model with 22 indicators and five latent variables was presented as a final model and subjected to further analyses.

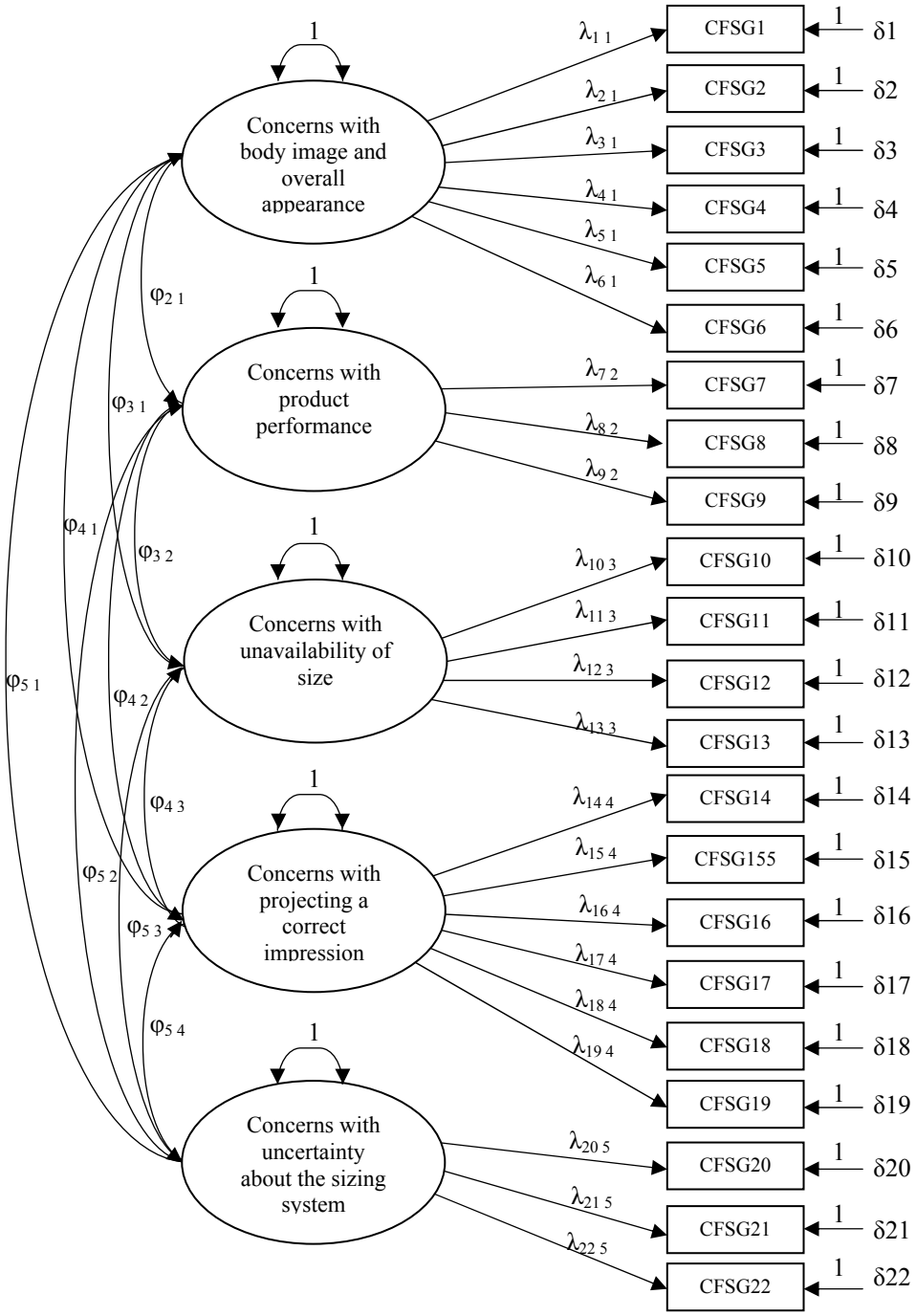
Table 3.9. Comparison of Fit Indices among Four 5-factor Models

Item(s) removed	*df*	χ^2	RMSEA	NFI	CFI	IFI
Full model with 26 indicators	289	750.02	.120	.88	.92	.92
The garment may not look nice on me.	265	628.92	.110	.90	.94	.94
The garment may not look nice on me. The garment may not fit perfectly.	242	510.29	.098	.91	.95	.95
The garment may not look nice on me. The garment may not fit perfectly. The garment may be too fitting to me.	220	420.05	.089	.91	.95	.95
The garment may not look nice on me. The garment may not fit perfectly. The garment may be too fitting to me. The store may not carry my size.	199	360.71	.084	.92	.96	.96

In addition, the model fits of different factor-solutions derived during exploratory factor analysis, were compared to verify the best solution. The exploratory factor analyses, 4- and 5-factor solutions were considered, and, therefore, two different models were compared using confirmatory factor analysis. Because the same pattern, in terms of the maximum modification indexes, was found among the indicators, the 4-factor model was also tested excluding four indicators removed from the 5-factor model. Therefore, the results of confirmatory factor analysis for the 4-factor model with 21 indicators revealed that the *chi*-

square test rejected the hypothesis of perfect fit ($\chi^2 = 450.62$, $df = 183$, $p < .001$) and achieved a RMSEA estimate of .11, the NFI of .90, CFI of .94, and IFI of .94. Compared to the 4-factor model, the 5-factor model showed a better fit in terms of the fit indices, supporting the findings of exploratory factor analysis. Therefore, the 5-factor model was considered as the best model in the offline shopping context. Figure 3.1 illustrates the graphical presentation of the hypothesized confirmatory factor analysis model of the 5-factor model with 22 indicators.

First, the measurement model was examined in terms of the sign and the statistical significance of each parameter estimate, including the path coefficients, the factor covariances, and the error variances. As a result of confirmatory factor analysis, all path coefficients (λ's on Figure 3. 1) from factors to their indicators were consistently positive and statistically significant at $p < .001$. No excessively large or small standard errors were detected, indicating the stability of the estimates. All of the factor covariance (or correlation) estimates (φ's on Figure 3. 1) were statistically significant at $p < .001$ and positive, which indicates that all factors address the facets of concerns with fit and size of garments in the offline context (see Table 3. 10). The standard errors observed from the factor correlation suggest the stability of the estimates. All of the error variance estimates (δ's on Figure 3. 1) were consistently positive. Therefore, it was concluded that all parameters were within an acceptable range.



$\chi^2 = 360.71$, $df = 199$, RMSEA = .084, NFI = .92, CFI = .96, IFI = .96

Figure 3. 1. Path Diagram of the Confirmatory Factor Analysis Model of Concerns with Fit and Size of Garments in the Offline Shopping Context

The goodness of model fit was examined based on various fit indices. The *chi*-square test rejected the hypothesis of the perfect fit at $p < .001$. The measurement model showed RMSEA of .084, NFI of .92, CFI of .96, and IFI of .96. Although the value of RMSEA indicated mediocre fit (Browne & Cudeck, 1992) and NFI did not exceed the cutoff of .95 (Hu & Bentler, 1999), these fit indices might be affected by the small sample size. However, CFI and IFI exceeded the cutoff of .95.

Reliability and Validity Analysis

Reliability of items was assessed in two ways: (1) Cronbach *alpha* coefficients and (2) construct reliability suggested by Fornell and Larcker (1981)[2]. As shown in Table 3.11, the Cronbach *alpha* value and construct reliability for items within all of the factors exceeded the cutoff point of .70, indicating the high internal consistency among the items within each factor.

Convergent validity was assessed, first, by examining the correlations among 22 items (see Appendix M, Table M.1). Although a few exceptions were observed, correlation coefficients between items within the same factor were greater than those with items from other factors. In addition, the convergent validity of each of the five dimensions of concerns with fit and size of garments in the offline context was assessed by examining the statistical significance of factor loadings and path coefficients and the magnitude of the squared multiple correlation (SMC) of each indicator from confirmatory factor analysis. As illustrated in Table 3.10, all of the path coefficients from the five factors to their corresponding indicators were statistically significant at $p < .001$. The SMCs for each indicator were greater

[2] $\rho_n = (\sum\lambda)^2 / (\sum\lambda)^2 + \sum\varepsilon$, as $\sum\varepsilon$ = 1-SMC

than .50, with the exception of four indicators (CFSG6, CFSG14, CFSG17, and CFSG18) that had SMCs ranging from .40 to .48 and one indicator (CFSG2) with the SMC of .29. In addition, the variance of each dimension exceeded .50, showing that the variance explained by the dimension exceeded the variance due to measurement error (see Table 3. 11). Based on the combined results, the convergent validity of items explaining the five dimensions of the measure was established.

To assess discriminant validity among concerns with fit and size of garment dimensions, the fit of correlated two-factor models was compared with that of one-factor models for each possible pair of dimensions (Anderson & Gerbing, 1988). A *chi*-square test was used to determine whether two-factor models show a significantly better fit over one-factor models. The results revealed that two factor models yielded a significantly better fit compared to the one-factor model for all 10 possible pairs of dimensions, verifying the discrimination among the dimensions. For example, the *chi*-square of the two factor model for Factor 1 and Factor 2 was 45.32 ($df = 26$); whereas, that of the one factor model was 417.53 ($df = 27$), indicating that the fit of the two-factor model is significantly better than that of the one-factor model ($\Delta\chi^2 = 372.21$, $\Delta df = 1$) at $p < .001$. The results of the *chi*-square tests between10 pairs of dimensions are presented in Table 3.12.

Table 3. 10. Parameter Estimates from the 5 Latent Variable, 22 Indicator CFA Model of Concerns with Fit and Size of Garments in the Offline Shopping Context

	Est.	S.Est.	S.E.	*t*
Path coefficients				
$\lambda_{1\,1}$	.53	.71	.06	8.44***
$\lambda_{2\,1}$	.59	.69	.07	8.18***
$\lambda_{3\,1}$	.56	.77	.06	9.43***
$\lambda_{4\,1}$	.58	.76	.06	9.30***
$\lambda_{5\,1}$	.70	.72	.08	8.58***
$\lambda_{6\,1}$	.65	.66	.08	7.66***
$\lambda_{7\,2}$	.91	.93	.07	13.06***
$\lambda_{8\,2}$	.87	.96	.06	13.73***
$\lambda_{9\,2}$	.77	.85	.07	11.24***
$\lambda_{10\,3}$	.95	.78	.10	9.67***
$\lambda_{11\,3}$	.77	.71	.09	8.42***
$\lambda_{12\,3}$	1.11	.90	.09	12.09***
$\lambda_{13\,3}$	1.02	.84	.09	10.82***
$\lambda_{14\,4}$	.55	.54	.09	6.06***
$\lambda_{15\,4}$	.95	.94	.07	13.12***
$\lambda_{16\,4}$	.94	.93	.07	12.99***
$\lambda_{17\,4}$	.53	.63	.07	7.40***
$\lambda_{18\,4}$	.68	.66	.09	7.85***
$\lambda_{19\,4}$	.82	.73	.08	8.97***
$\lambda_{20\,5}$	.63	.71	.08	7.79***
$\lambda_{21\,5}$	.79	.82	.09	9.28***
$\lambda_{22\,5}$	.68	.71	.09	7.79***
Factor covariance/correlations [a]				
$\varphi_{2\,1}$	.74	.74	.05	13.98***
$\varphi_{3\,1}$	.64	.64	.07	9.34***
$\varphi_{4\,1}$	.67	.67	.06	10.80***
$\varphi_{5\,1}$	.50	.50	.09	5.59***
$\varphi_{3\,2}$	.77	.77	.05	16.45***
$\varphi_{4\,2}$	.44	.44	.08	5.54***
$\varphi_{5\,2}$	.42	.42	.09	4.66***
$\varphi_{4\,3}$	.47	.47	.08	5.90***
$\varphi_{5\,3}$	.41	.41	.09	4.38***
$\varphi_{5\,4}$	.47	.47	.09	5.41***
Error variances				
$\theta_{\delta 1}$	.27	.49	.04	6.68***
$\theta_{\delta 2}$	.37	.52	.05	6.76***
$\theta_{\delta 3}$	.22	.41	.03	6.29***
$\theta_{\delta 4}$	.24	.42	.04	6.35***
$\theta_{\delta 5}$	.45	.48	.07	6.63***
$\theta_{\delta 6}$	.54	.56	.08	6.90***
$\theta_{\delta 7}$	.13	.14	.03	4.84***
$\theta_{\delta 8}$	.07	.08	.02	3.41***

a. Factor covariances and correlations are equal because all of the factor variances were identified to be 1.0.

Est. = parameter estimate; S. Est. = standardized estimate of parameter; S.E. = standard error

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 3.10. (continued)

$\theta_{\delta 9}$	.23	.28	.03	6.61***
$\theta_{\delta 10}$	.59	.39	.09	6.44***
$\theta_{\delta 11}$	.61	.50	.09	6.86***
$\theta_{\delta 12}$	.29	.19	.07	4.38***
$\theta_{\delta 13}$	.44	.30	.08	5.77***
$\theta_{\delta 14}$	.76	.71	.10	7.40***
$\theta_{\delta 15}$	.13	.13	.03	4.10***
$\theta_{\delta 16}$	.14	.13	.03	4.33***
$\theta_{\delta 17}$	.42	.60	.06	7.29***
$\theta_{\delta 18}$	.59	.56	.08	7.23***
$\theta_{\delta 19}$	.45	.47	.06	7.06***
$\theta_{\delta 20}$	.40	.50	.07	5.70***
$\theta_{\delta 21}$	.31	.33	.08	3.84***
$\theta_{\delta 22}$	.46	.50	.08	5.70***

Finally, the criterion validity of the measure was assessed using correlation analysis between the summated score of items from each dimension of the measure and that of two general concerns with fit and size of garment items. Prior to the correlation analysis, the reliability of two general concerns with fit and size of garment items was calculated to ensure the unidimensionaility of the scale. Factor analysis was performed using principle component analyses with varimax rotation and one factor was produced. The reliability of the two items was .79. All of the correlations between the concerns with fit and size of garment factor scores and general concerns with fit and size of garment score exceeded .50, except the correlation coefficient between the composite score of factor 5 and that of general concerns with fit and size of garments (.348). All of the correlation coefficients were significant ($p < .01$), establishing the criterion validity of the measure.

Table 3.11. Results of Confirmatory Factor Analysis for the Concerns with Fit and Size of the Garment Items in the Offline Shopping Context with 5 Latent Variables and 22 Indicators

	Standardized Factor loading	Cronbach *alpha* value	Construct reliability	Variance[a]
Factor 1: Concerns with Body Image and Overall Appearance		.86	.87	.52
1. The garment may not look good on me.	.71			
2. I may feel uncomfortable in the garment.	.69			
3. The garment may not fit well.	.77			
4. The size of the garment may not fit me.	.76			
5. I may look bigger (or wider) in the garment.	.72			
6. The garment may be too tight on me.	.66			
Factor 2: Concerns with Product Performance		.93	.94	.83
1. The size may not fit properly.	.93			
2. The garment may not fit right.	.96			
3. The fit of the garment may not be precise.	.85			
Factor 3: Concerns with Unavailability of Size		.88	.88	.66
1. I may not find my size in the store.	.78			
2. I may not find the exact size I am looking for in the store.	.71			
4. My body may not fit the garments selling in the store.	.90			
5. I may not find a garment that fits my body.	.84			
Factor 4: Concerns with Projecting a Correct Impression		.88	.88	.57
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.54			
2. The garment may not give other people a positive impression about me.	.94			
3. The garment may not give other people the right impression about me.	.93			
4. I may look weird in the garment.	.63			
5. The garment may be too revealing.	.66			
6. I may not project the self image that I want to show other people when wearing the garment.	.73			
Factor 5: Concerns with Uncertainty about the Sizing System		.79	.79	.56
1. The sizing system of the store may not be accurate.	.71			
2. The sizes of the garments in the store may not be consistent.	.82			
3. I don't trust the sizing system of the store.	.71			

a. $\rho = \sum\lambda^2 / \sum\lambda^2 + \sum\varepsilon$, as $\sum\varepsilon$ = 1-SMC (Fornell & Larcker, 1981)

Table 3.12. Results of Discriminant Validity Test between 10 pairs of Latent Variables in the Offline Shopping Context

Pair of Dimensions		One-factor model	Two-factor model	χ^2_{diff}
Factor 1 & Factor 2	χ^2	216.14***	51.70**	164.44***
	df	27	26	
	RMSEA	.25	.093	
	NFI	.87	.96	
	CFI	.89	.98	
Factor 1 & Factor 3	χ^2	273.53***	73.62	199.91***
	df	35	34	
	RMSEA	.24	.10	
	NFI	.83	.94	
	CFI	.86	.97	
Factor 1 & Factor 4	χ^2	322.10***	137.11***	184.99***
	df	54	53	
	RMSEA	.21	.12	
	NFI	.86	.91	
	CFI	.88	.94	
Factor 1 & Factor 5	χ^2	111.24***	34.49	76.75***
	df	27	26	
	RMSEA	.16	.053	
	NFI	.88	.95	
	CFI	.89	.98	
Factor 2 & Factor 3	χ^2	155.56***	54.15***	101.41***
	df	14	13	
	RMSEA	.30	.17	
	NFI	.86	.94	
	CFI	.87	.95	
Factor 2 & Factor 4	χ^2	417.53***	45.32*	372.21***
	df	27	26	
	RMSEA	.35	.080	
	NFI	.69	.96	
	CFI	.71	.98	
Factor 2 & Factor 5	χ^2	110.18***	16.75*	93.43***
	df	9	8	
	RMSEA	.31	.098	
	NFI	.77	.96	
	CFI	.78	.98	
Factor 3 & Factor 4	χ^2	315.72***	51.82*	263.90***
	df	35	34	
	RMSEA	.26	.068	
	NFI	.78	.96	
	CFI	.80	.98	

Table 3.12. (continued)

Factor 3 & Factor 5	χ^2	120.18***	25.79*	94.39***
	df	14	13	
	RMSEA	.26	.092	
	NFI	.78	.95	
	CFI	.80	.98	
Factor 4 & Factor 5	χ^2	128.21***	31.23	96.98***
	df	27	26	
	RMSEA	.18	.042	
	NFI	.87	.97	
	CFI	.90	1.00	

Confirmatory Factor Analysis Results of Concerns with Fit and Size of Garment Items in the Online Shopping Context

First, the model fits of different factor-solutions were examined to compare the models and verify the best solution. In addition, the maximum modification indexes of each confirmatory factor analysis model were examined to see if the items that showed high modification indexes in the offline shopping context also consistently demonstrated high modification indexes in the online shopping context. Therefore, four different confirmatory factor analysis models (7-, 6-, 5-, and 4-factor models) were tested and the results are presented in Table 3.13. A series of confirmatory factor analyses revealed that models showed better fit indices when such items as "The garment may not look nice on me," "The garment may not fit perfectly," and "The store may not carry my size" were removed, showing the consistency in findings between the offline and online shopping contexts. Although the 7-factor models showed a better fit in terms of RMSEA compared to the 5-factors model, the CFI and IFI of the two models were identical. Therefore, considering the issue of model parsimony, the 5-factor model with 22 items was selected for use in the quantitative part (Phase 3) of this study.

The results of confirmatory factor analysis, using 22 indicators and 5 latent variables, showed that the *chi*-square test rejected the hypothesis of perfect fit ($\chi^2 = 338.69$. $df = 199$, $p < .001$). Although the model showed mediocre fit based on RMSEA, the CFI and IFI fell into the cutoff of .95. In addition, the low value of NFI might be caused by the small sample size.

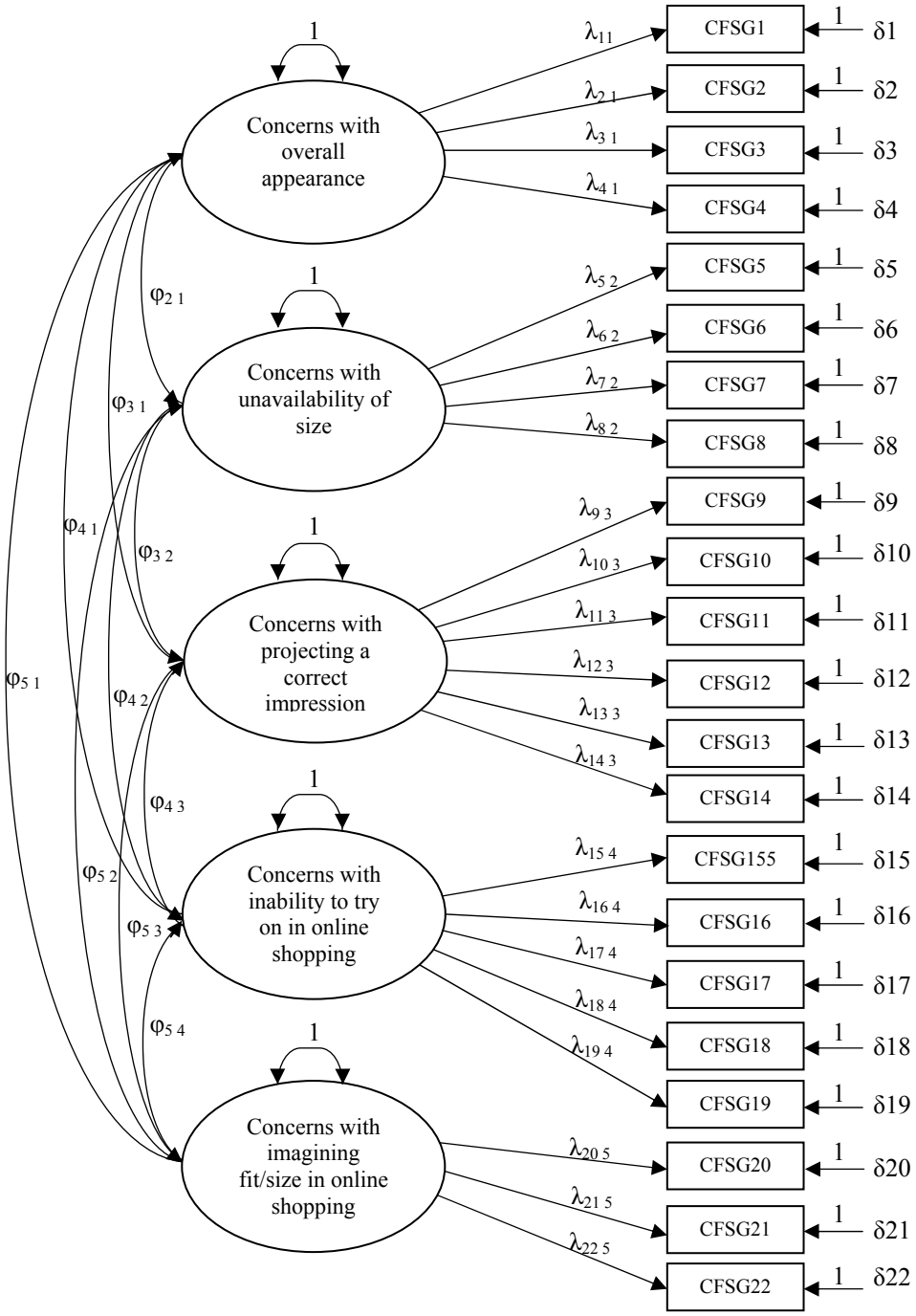
Table 3.13. Results of Comparison among Four Confirmatory Factor Models in the Online Shopping Context

	7-factor model	6-factor model	5-factor model	4-factor model
χ^2	889.47 (586.08[a])	915.05 (625.93[b])	513.69 (338.69[c])	424.78 (375.80[d])
df	443 (356[a])	419 (335[b])	242 (199[c])	203 (183[d])
RMSEA	.10 (.080[a])	.11 (.093[b])	.11(.084[c])	.10 (.10[d])
NFI	.88 (.90[a])	.87 (.88 [b])	.87 (.89[c])	.87 (.87[d])
CFI	.93(.95[a])	.92 (.94[b])	.92 (.95[c])	.93 (.93[d])
IFI	.94(.95[a])	.92 (.94[b])	.92 (.95[c])	.93 (.93[d])

Note. The model fit after items were eliminated due to the maximum modification indexes were presented in parentheses

a. Three items ('The garment may not look nice on me', 'The garment may not fit perfectly', and 'The store may not carry my size') were eliminated from the model with 32 items.
b. Three items ('The garment may not look nice on me', 'The garment may not fit perfectly', and 'The store may not carry my size') were eliminated from the model with 31 items.
c. Two items ('The garment may not look nice on me' and 'The store may not carry my size') were eliminated from the model with 24 items.
d. One item ('The store may not carry my size') was eliminated from the model with 22 items.

The measurement model was examined in terms of the sign and statistical significance of each parameter estimate such as the path coefficients, the factor covariances, and the error variances (see Table 3. 14). The results showed that all of the path coefficients (λ's on Figure 3. 2) were consistently positive and statistically significant at $p < .001$. No excessively large or small standard errors were detected, indicating the stability of the estimates. All of the factor covariance (or correlation) estimates (φ's on Figure 3. 2) and error variance estimates (δ's on Figure 3. 2) were statistically significant at $p < .001$ and positive. Therefore, it was concluded that all parameters were within an acceptable range. Figure 3.2 illustrates the graphical presentation of the hypothesized 5-factor model with 22 indicators.



χ^2 = 338.69, *df* = 199, RMSEA = .084, NFI = .89, CFI = .95, IFI = .95

Figure 3. 2. Path Diagram of the Confirmatory Factor Analysis Model of Concerns with Fit and Size of Garments in the Online Shopping Context

Table 3.13. Parameter Estimates from the 5 Latent Variable, 22 Indicator Confirmatory Factor Analysis Model of Concerns with Fit and Size of Garments in the Online Shopping Context

	Est.	S.Est.	S.E.	*t*
Path coefficients				
$\lambda_{1\,1}$	.40	.54	.07	5.40***
$\lambda_{2\,1}$	.46	.63	.07	6.49***
$\lambda_{3\,1}$	.46	.79	.05	8.63***
$\lambda_{4\,1}$	.43	.64	.07	6.58***
$\lambda_{5\,2}$	1.03	.79	.11	9.18***
$\lambda_{6\,2}$	1.06	.83	.11	9.88***
$\lambda_{7\,2}$	1.17	.90	.10	11.34***
$\lambda_{8\,2}$	1.11	.88	.10	10.91***
$\lambda_{9\,3}$	.75	.71	.09	8.08***
$\lambda_{10\,3}$	.98	.94	.08	12.28***
$\lambda_{11\,3}$	.99	.95	.08	12.65***
$\lambda_{12\,3}$	.58	.61	.09	6.69***
$\lambda_{13\,3}$	.57	.59	.09	6.33***
$\lambda_{14\,3}$	.63	.67	.08	7.52***
$\lambda_{15\,4}$	.50	.56	.09	5.62***
$\lambda_{16\,4}$	.67	.83	.07	9.32***
$\lambda_{17\,4}$	.44	.65	.07	6.72***
$\lambda_{18\,4}$	.40	.55	.07	5.53***
$\lambda_{19\,4}$	.45	.62	.07	6.38***
$\lambda_{20\,5}$	.80	.73	.10	8.10***
$\lambda_{21\,5}$	.77	.90	.07	10.98***
$\lambda_{22\,5}$	.60	.78	.07	8.92***
Factor covariance/correlations [a]				
$\varphi_{2\,1}$	.62	.62	.08	7.55***
$\varphi_{3\,1}$	.44	.44	.10	4.46***
$\varphi_{4\,1}$	.60	.60	.09	6.47***
$\varphi_{5\,1}$	.74	.74	.07	10.58***
$\varphi_{3\,2}$	.31	.31	.10	3.24***
$\varphi_{4\,2}$	.42	.42	.10	4.27***
$\varphi_{5\,2}$	.38	.38	.10	3.95***
$\varphi_{4\,3}$	.44	.44	.09	4.70***
$\varphi_{5\,3}$	.62	.62	.07	8.72***
$\varphi_{5\,4}$	.75	.75	.06	11.64***
Error variances				
$\theta_{\delta 1}$	.38	.71	.06	6.48***
$\theta_{\delta 2}$	.32	.60	.05	6.12***
$\theta_{\delta 3}$	.13	.37	.03	4.61***
$\theta_{\delta 4}$	.27	.59	.04	6.08***
$\theta_{\delta 5}$	.66	.38	.11	6.08***

a. Factor covariances and correlations are equal because all of the factor variances were identified to be 1.0.

Est. = parameter estimate; S. Est. = standardized estimate of parameter; S.E. = standard error

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 3.13. (continued)

$\theta_{\delta 6}$	.52	.32	.09	5.75***
$\theta_{\delta 7}$	.32	.19	.07	4.38***
$\theta_{\delta 8}$	.36	.23	.07	4.91***
$\theta_{\delta 9}$	.55	.49	.08	6.71***
$\theta_{\delta 10}$	.14	.12	.03	4.02***
$\theta_{\delta 11}$	.10	.09	.03	3.23***
$\theta_{\delta 12}$	.55	.62	.08	6.86***
$\theta_{\delta 13}$	.61	.65	.09	6.88***
$\theta_{\delta 14}$	.48	.55	.07	6.77***
$\theta_{\delta 15}$	.55	.69	.08	6.48***
$\theta_{\delta 16}$	.21	.31	.05	4.18***
$\theta_{\delta 17}$	.27	.58	.04	6.12***
$\theta_{\delta 18}$	.36	.70	.06	6.50***
$\theta_{\delta 19}$	.32	.62	.05	6.25***
$\theta_{\delta 20}$	.57	.47	.09	6.15***
$\theta_{\delta 21}$	.15	.20	.04	3.65***
$\theta_{\delta 22}$	.23	.39	.04	5.78***

Reliability and Validity Analysis

As shown in Table 3.14, the Cronbach *alpha* value and construct reliability for items within all of the factors exceeded the cutoff point of .70, indicating the good internal consistency among the items within each factor.

To assess the convergent validity, the correlations among the 22 items (see Appendix M, Table M.2) were examined. With a few exceptions all correlation coefficients between items within a same factor were greater than those of items from other factors. In addition, the statistical significance of factor loadings and path coefficients and the magnitude of the SMC of each indicator were considered. As shown in Table 3.14, all of the path coefficients from the five factors to their corresponding indicators were statistically significant at $p < .001$. However, ten of the SMCs among 22 indicators were lower than .50. In addition, the variances of two out of five dimensions were lower than .50. Therefore, given the small sample size, the convergent validity of items should be interpreted with caution.

Discriminant validity was assessed by comparing the fit of correlated two-factor models and that of one-factor models for each possible pair of dimensions (Anderson & Gerbing, 1988). A *chi*-square test was used to determine if the two-factor models had a significantly better fit over one-factor models. The results revealed that two factor models yielded a significantly better fit compared to the one-factor model for all 10 possible pairs of dimensions, indicating the discrimination among the dimensions. The results of *chi*-square tests between10 pairs of dimensions are presented in Table 3.15.

Finally, the criterion validity of the measure was assessed using correlation analysis between the summated score of items from each dimension of the measure and that of two general concerns with fit and size of garment items. The reliability of two general concerns with fit and size of garments items was .79. All of the correlations between the concerns with fit and size of garment factor score and the general concerns with fit and size of garment score exceeded .50, except the correlation coefficient between the composite score of factor 2 and that of general concerns with fit and size of garments (.389). All of the correlation coefficients were significant ($p < .01$); therefore, the criterion validity of the measure was established.

Table 3.14. Results of Confirmatory Factor Analysis for the Concerns with Fit and Size of the Garment Items in the Online Shopping Context with 5 Latent Variables and 22 Indicators

	Standardized Factor loading	Cronbach *alpha* value	Construct Reliability	Variance[a]
Factor 1: Concerns with Overall Appearance		.72	.75	.43
1. The garment may not look good on me.	.54			
2. I may feel uncomfortable in the garment.	.63			
3. The garment may not fit well	.79			
4. The size of the garment may not fit me.	.64			
Factor 2: Concerns with Unavailability of Size		.91	.91	.72
1. I may not find my size in the store.	.79			
2. I may not find the exact size I am looking for in the store.	.83			
3. My body may not fit the garments selling in the store.	.90			
4. I may not find a garment that fits my body.	..88			
Factor 3: Concerns with Projecting a Correct Impression		.89	.89	.58
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.71			
2. The garment may not give other people a positive impression about me.	.94			
3. The garment may not give other people the right impression about me.	.95			
4. I may look weird in the garment.	.61			
5. The garment may be too revealing.	.59			
6. I may not project the self image that I want to show other people when wearing the garment.	.67			
Factor 4: Concerns with Inability to Try on in Online Shopping		.78	.78	.42
1. The fit of the garment may be different from what I see on the website.	.56			
2. The garment on the website may look different when I try it on at home.	.83			
3. The garment may fit differently on me than it fits on the model.	.65			
4. Depending on brands, the garment fit may be different.	.55			
5. The garment may not fit all body shapes and sizes.	.62			
Factor 5: Concerns with Imagining Fit/Size in Online Shopping		.82	.85	.65
1. Shopping in the website, I may have a hard time picturing myself wearing the garment.	.73			
2. I may have a hard time imagining the fit of the garment shopping in the website.	.90			
3. My guess about the garment fit may not be correct when shopping in the website.	.78			

a. $\rho = \sum\lambda^2 / \sum\lambda^2 + \sum\varepsilon$, as $\sum\varepsilon$ = 1-SMC (Fornell & Larcker, 1981)

Table 3.15. Results of Discriminant Validity Test between 10 pairs of Latent Variables in the Online Shopping Context

Pair of Dimensions		One-factor model	Two-factor model	χ^2_{diff}
Factor 1 & Factor 2	χ^2	89.05***	43.03**	46.02***
	df	20	19	
	RMSEA	.19	.11	
	NFI	.86	.94	
	CFI	.89	.96	
Factor 1 & Factor 3	χ^2	172.78***	71.96***	100.82***
	df	35	34	
	RMSEA	.20	.11	
	NFI	.83	.91	
	CFI	.87	.95	
Factor 1 & Factor 4	χ^2	96.46***	57.17***	39.29***
	df	27	26	
	RMSEA	.16	.11	
	NFI	.79	.87	
	CFI	.84	.92	
Factor 1 & Factor 5	χ^2	54.35***	24.70*	29.65***
	df	14	13	
	RMSEA	.17	.095	
	NFI	.87	.93	
	CFI	.90	.96	
Factor 2 & Factor 3	χ^2	509.53***	77.78***	431.75***
	df	35	35	
	RMSEA	.37	.11	
	NFI	.61	.92	
	CFI	.63	.95	
Factor 2 & Factor 4	χ^2	188.10***	59.30***	128.80***
	df	27	26	
	RMSEA	.24	.11	
	NFI	.75	.90	
	CFI	.78	.94	
Factor 2 & Factor 5	χ^2	139.58***	38.40***	101.18***
	df	14	13	
	RMSEA	.30	.14	
	NFI	.71	.92	
	CFI	.72	.95	
Factor 3 & Factor 4	χ^2	243.60***	92.75***	150.85***
	df	44	43	
	RMSEA	.21	.11	
	NFI	.79	.89	
	CFI	.83	.94	

Table 3.15. (continued)

Factor 3 & Factor 5	χ^2	142.62***	60.02***	82.60***
	df	27	26	
	RMSEA	.21	.11	
	NFI	.86	.94	
	CFI	.89	.97	
Factor 4 & Factor 5	χ^2	78.21***	53.47***	24.74***
	df	20	19	
	RMSEA	.17	.13	
	NFI	.85	.89	
	CFI	.88	.92	

Discussion

Phase 2 of the present study consisted of two pilot studies for developing scales measuring concerns with fit and size of garments in the context of offline and online apparel shopping. In the present study, concerns with fit and size of garments was defined as the subjectively determined consumer's expectations and perceived risks related to the fit and size of garments in considering a particular purchase decision. Frost (1988) suggested that perception of good fit may be the consumer's desire for a garment to fit loosely on the body to provide him or her comfort or to fit perfectly to enhance his or her appearance. Consumer's perceived satisfaction with fit may include physical comfort, psychological comfort, and appearance (Frost, 1988). Therefore, it was expected that concerns with fit and size of garments consisted of multiple dimensions and that consumers have different types of concerns with fit and size of garments when shopping for apparel online compared to when shopping for apparel in physical stores.

As expected, the present study found that concerns with fit and size of garments comprised distinct multiple dimensions. It appeared that both offline and online shopping contexts shared similar concerns with fit and size of garments to some extent, but at the same

time, the concerns with fit and size in the two different shopping formats were explained by different dimensions. In the online shopping context, two dimensions were identified – concerns with inability to try on garments and with imagining the fit and size in online shopping–which describe unique concerns with fit and size in online shopping. These findings tended to be consistent with those from the focus group interviews (Phase 1) in terms of the dimensions generated and items explaining each dimension, even though a few exceptions were observed. The finalized scale items of concerns with fit and size of garments in offline and online shopping are presented in Table 3.11 and 3.14. The discussion for each identified dimension of the scales follow.

Concerns with Fit and Size of Garment Dimensions in the Context of Offline Shopping

The findings of factor analyses showed that concerns with fit and size of garments in the offline context consisted of five dimensions. They are: (1) concerns with body image and overall appearance, (2) concerns with product performance, (3) concerns with unavailability of size, (4) concerns with projecting a correct impression, and (5) concerns with uncertainty about the sizing system.

"Concerns with body image and overall appearance" was defined in this study as concerns with fit and size of garments derived from an individual's general body image, dissatisfaction with a specific body part, and overall appearance. The factor appeared to explain the biggest portion of variance (19 percent) in the scale. In this dimension, two items, "The garment may not look good on me" and "I may look bigger (or wider) in the garment" were associated with body image and overall appearance. However, interestingly, the remaining items seemed related to other types of concerns such as physical comfort (e.g., "I may feel uncomfortable in the garment") or fit performance (e.g., "The garment may not fit

well"). As discussed in the results of the focus group interviews (Phase 1), concerns with fit and size of garment dimensions appeared to be distinct, but also interrelated with each other. For instance, physical comfort in fit and size of garment may influence an individual's psychological comfort, which may affect satisfaction with one's overall appearance. Cash (1990) suggested that clothing plays a role as a mood-altering substance by which individuals generate desired self-perceptions and emotional experience. Therefore, the statement "feel comfortable (or uncomfortable)" may indicate not only physical comfort, but also an individual's psychological comfort induced by wearing a garment which improves an individual's overall appearance. In addition, an individual's perception about whether the garment would fit well or be too tight might be associated with one's concerns with overall appearance when wearing the garment. Therefore, concerns related to body image and overall appearance may also include physical and psychological concerns.

"Concerns with product performance" was defined as concerns about whether the garment fits and performs well with the individual's body. The dimension was explained by three items such as "The size may not fit properly," "The garment may not fit right," and "The fit of the garment may not be precise." In the focus group interviews, concerns related to whether the garment is too small or tight and whether the material does not work well with one's body were considered to be classified in the dimension of "Concerns with product performance." However, the results of exploratory factor analysis showed that those items were not included in the dimension but identified as items explaining concerns with body image and overall appearance. The three items concerned with fit performance focused more on concerns about whether the garment fit precisely or the size fit properly. This finding supports the results of the focus group interviews in that about one-half of the comments in

this dimension were related to whether the garments fit properly, correctly, and precisely. These types of concerns may be considered a consequence of individuals' concerns with an inaccurate and inconsistent sizing system from their retail shopping experiences.

"Concerns with unavailability of size" referred to concerns about not finding a size or the need to make an additional effort to find the right size and fit when shopping for apparel. However, the items related to making an additional effort to find the right size and fit were not included in the dimension. Concerns with unavailability of size are often associated with stockout situations that consumers with varied body sizes may have experienced. Therefore, concern with unavailability of size may not be limited to consumer groups with specific body sizes (i.e., petite or big size). Stockouts affect components of store image related to product quality, customer service, value, convenience, product variety, and availability (Schary & Christopher, 1979) and influence purchase intention (Faircloth et al., 2001) as well as future patronage intention toward the store (Zinn & Liu, 2001). Zinn and Liu (2001) found that a consumer's overall perception of the store tends to be affected even by a single stockout instance. Consumers who experienced a stockout are less likely to agree with the statement "the store usually has what I want" (Zinn & Liu, 2001). Particularly, in the apparel online shopping context, Kim (2004) found that stockouts influence consumer's negative emotion as well as satisfaction within the store. Therefore, concerns with unavailability of size due to stockouts have important implications for apparel retailers in terms of the influence of stockouts on consumers' perceptions and behaviors.

"Concerns with projecting a correct impression" was defined as concerns about how other people look at the self and whether the individual sees him/herself projecting an appropriate self-image to others. Consistent with the findings of the focus group interviews,

six items identified from the interviews were included in this dimension. This dimension represented an individual's desire to give other people a positive impression as well as to avoid negative impressions (e.g., "look weird," "too revealing") about them when wearing garments they buy. In addition, an individual's desire to project the self-image that he or she wants to show other people when wearing garments explained this dimension. Therefore, the congruency between self-image and garment fit may be important concerns for consumers in apparel consumption.

"Concerns with uncertainty about the sizing system" referred to concerns about whether the sizing system of a store or brand is accurate or the sizing system is consistent throughout different stores or brands. Consistent with the findings of the focus group interviews, three items, addressing the consistency and accuracy of sizing system of apparel store or brand, were included in this dimension. Because of vanity and exclusionary sizing systems created by fashion companies, consumers may have a difficult time to determine their sizes in both offline and online shopping. Although both types of sizing systems are designed to sell more clothes, create preferable store image, and increase customer loyalty (Rickey, 2007), an inconsistent and inaccurate sizing system may increase consumers' perceived risk and concerns related to fit and size of garments in apparel shopping.

Concerns with Fit and Size of Garment Dimensions in the Context of Online Shopping

Five dimensions were identified in the offline shopping context that also emerged in the online shopping context. Therefore, five dimensions, including concerns with body image and overall appearance, product performance, unavailability of size, projecting a correct impression, and uncertainty about the sizing system, appeared to be common dimensions of concerns with fit and size of garments that can be applied to both offline and online shopping

situations. Besides the five dimensions, two additional dimensions, including concerns with imagining the fit and size and inability to try on in online shopping, were identified in the online shopping context in the initial factor solution. These dimensions revealed that consumers perceive additional concerns when shopping for apparel online because they cannot try on the garment and, therefore, have to guess the fit and size of garments. Although the 5-factor solution was chosen based on the results of exploratory and confirmatory factor analyses, and due to the issue of model parsimony, the two contents were still included in the final five dimensions. The final five dimensions, including: (1) Concerns with overall appearance, (2) Concerns with unavailability of size, (3) Concerns with projecting a correct impression, (4) Concerns with inability to try on in online shopping, and (5) Concerns with imagining fit/size in online shopping," are presented in Table 3.14.

Some dimensions, such as concerns with overall appearance, unavailability of size, and projecting a correct impression, emerged for the offline shopping context and were also consistently identified for the online shopping context. These dimensions, except concerns with overall appearance, were explained by the same items as used for the offline shopping context. Therefore, the two types of concerns with fit and size of garments were associated with consumers' concerns due to inability to try on the garment and imagine the fit/size in online shopping. While consumers may undergo a risk-reduction process by trying on or physically inspecting the garments in offline shopping, in online shopping consumers need to depend on the visual information provided by the retailers or imagine the fit of the garment by picturing themselves wearing the garment, a process that may be highly related to consumers' perceptions of risk.

"Concerns with an inability to try on in online shopping" referred to concerns about whether the garment may fit differently when consumers tried it on and whether the garment may be different from what they see on the website. In addition, two items (e.g., "Depending on brands, the garment fit may be different") appeared to be related to concerns with uncertainty about the sizing system. However, it is not surprising that because consumers cannot try on the garment and check the size on their bodies, the two types of concerns may be closely associated with each other.

Another type of concern with fit and size of garment in online shopping was "Concern with imagining the fit/size in online shopping," which referred to concerns that consumers have to make a guess when imagining the fit of the garment and risks that their guess may not be correct, which may result in financial and time losses when returning and perhaps re-ordering the product. Therefore, this gives an important implication to e-retailers that they need to use various types of visual devices (e.g., enlargement, pan-function, multiple views) to facilitate consumers' imagery processes picturing the fit and size of garments on their bodies. Because consumers were concerned that the fit of the garment may be different as it is on the model because of a discrepancy between their bodies and that of the model, it may be useful to have models with different body sizes wearing the same style. In addition, having a size chart with a standardized sizing and actual dimensions of each garment may help consumers estimate the fit and size of garments. In addition, the use of the advanced personalized model (e.g., My Virtual Model), integrating consumers' body scan data, may be helpful for consumers to imagine the fit and size of garments in online shopping.

Significance of Concerns with Fit and Size of Garment Scale

The significance of the development of the concern with fit and size of garments scales in the offline and online shopping context can be discussed in three points. First, this is the first study that explored the domain of concern with fit and size of garments and identified items quantitatively measuring the domain in apparel shopping. Despite a given fact that fit/size of garments is one of the most important considerations for consumers when purchasing apparel and is the biggest reason for consumers to not buy apparel online (Beck, 2003), no research has investigated the concept specifically and developed a scale to measure its dimensions. Therefore, this study provided apparel retailers important information that understanding consumers' concerns with fit and size of garments will ultimately lead to better merchandising and marketing strategies as well as allow them to influence consumers' perceptions and behaviors in an apparel shopping environment. In addition, concerns with fit and size of garment scales developed in this study will fill the gap in the literature, providing researchers measures that can be tested in various contexts of study.

Concerns with fit and size of garment scales, in both offline and online shopping contexts, were developed for a particular consumer group (young female consumers). Throughout the process of the scale development, the characteristics of the samples were maintained to address this specific type of target customers. This is important because different groups of consumers may have different types of concerns with fit and size of garments. For example, middle-aged consumers, compared to younger consumers, may have different types of concerns or risks with fit and size in apparel shopping. Researchers have found that women experience a change in metabolism during their middle-aging years (i.e., the 40s and 50s), which may result in weight gain (Whitbourne, 1985; Williamson, 1993).

Particularly, the abdomen and lower trunk are the body parts in which much of this weight gain occurs (Ashwell, Chinn, Stalley, & Garrow, 1978). Therefore, middle-aged women's bodies may be different from the ideal attractive female body, particularly in the waist, hips, and thighs (Rudd & Lennon, 1994), which may influence their concerns with fit and size of garments.

In addition, perceptions or concerns with fit and size of garments of males may be different from those of females. Researchers have provided substantial evidence that men and women hold different attitudes toward the body (e.g., Bartky, 1990). More women have obsessively struggled using diets or exercise to achieve the ideal body figure than have men. As a result, the body images of women and men are prominently different. In one study 35 percent of the women mentioned that they felt fat, although other people said the same women were thin; in contrast, only 12.5 percent of the men said they felt fat (Bartky, 1990). Bartky (1990) also suggested that a "woman's body is an ornamented surface" (p. 67), which involves various disciplines, such as make-up and the selection of clothes. Therefore, it is possible to assume that women are more conscientious about fit and size of garments than men are and there may be differences between males and females in terms of perceived concerns with fit and size when purchasing apparel. Therefore, for future research, it is worth investigating the differences among different consumer groups in terms of concerns with fit and size of garments.

Finally, the scales of concerns with fit and size of garment were developed in both offline and online shopping contexts. Multi-channel operations have become a critical part of retailing due to the increasing level of consumers' acceptance of the Internet and Internet shopping and innovations in Internet technology. According to a study by the Aberdeen

Group, about 51 percent of retailers use at least two shopping channels. About 60 percent of retailers reported that profits are higher when customers use multi-channels than when customers use only one shopping channel (Shankar & Winer, 2005). As a result, the top 50 retailers have continuously made efforts to integrate Internet and store operations (*Internet Retailer*, 2004). In order to increase the effectiveness of offline and online operations, apparel retailers need to understand the different types of concerns with fit and size of garments in different shopping formats. Therefore, the findings of the present study are especially important for multi-channel apparel retailers to improve the quality of merchandising related to fit and size and the way they display product information in the online shopping environment.

Limitations of the Scale Development Process

The scale of concerns with fit and size of garments in the online shopping context was developed for use in the quantitative part of this study. Because the model was tested using SEM, where model parsimony is an important issue, the 5-factor solution was chosen over the 7-factor solution, which was an initial solution. Therefore, although having a parsimonious model was an important consideration in choosing the number of factors in the present study, there is a possibility that we may lose some information originally captured by the initial pool of items. Therefore, the scale should be used with caution. Items that were eliminated may need to be readdressed in the scale and tested in further studies to generalize the use of the scale to various populations and product types.

Another limitation of this study was small sample sizes for the confirmatory factor analyses of the scales. It is recommended to have a sample size that has 10 to 20 times as many cases as indicators (Mitchell, 1993; Stevens, 1996) when the data are analyzed using

SEM. Therefore, the small sample sizes might have influenced the confirmatory factor analyses findings. Therefore, caution must be used in interpreting the findings of the confirmatory factor analysis.

PHASE 3: HYPOTHESIZED MODEL

The objective of the present study was to examine the proposed model (see Chapter 2) of relationships among body image self-discrepancy, body dissatisfaction, fashion involvement, concern with fit and size of garments, and loyalty intentions in the online shopping context. The remaining part of Phase 3 includes descriptions of the method, the results of model testing, and conclusions.

Method: Hypothesized Model

Sample

A random sample, including 3,000 female students, was used for the data collection. A list of 3,000 students was randomly selected from the pool of all students enrolled in the Iowa State University at the time of data collection. The list of email addresses was obtained through the University's Office of the Registrar.

Instrument

Body image self-discrepancy. The body-image ideals questionnaire developed by Cash and Szymanski (1995) was used to assess discrepancies between actual and ideal appearance. The scale was developed to measure self-perceived discrepancies from and importance of internalized ideals for multiple physical attributes. The scale consists of 10 items, measuring physical attributes such as height, skin complexion, hair texture and thickness, facial features, muscle tone and definition, body proportions, weight, chest size, physical strength, and physical coordination. For each attribute, respondents are asked to think about discrepancies between their personal ideal (how they wish or prefer to be) and actual appearance attributes. The discrepancies are rated using a scale anchored as -1 (exactly

as I am), +1 (almost as I am), +2 (fairly unlike me), and +3 (very unlike me). Then, respondents rate the importance they put on each ideal on a scale anchored as 0 (not important), 1 (somewhat important), 2 (moderately important), and 3 (very important). The scores of discrepancy and importance are calculated to create the weighted discrepancy scores. The scale was developed in a way that the assignment of a 0 for any unimportant ideal produces a cross-product of 0, adequately ignoring the extent of discrepancy. In addition, the assignment of a -1 to "exactly as I am" yields continuity of the weighted discrepancy scores from very important self-ideal congruities to very important discrepancies. Higher scores indicate greater discrepancy. The reliability of the scale reported by Cash and Szymanski (1995) was .77 for the weighted discrepancy scores.

The purpose of this study was to test the influence of body image self-discrepancy between consumer's actual body image and bodies of the apparel models in the online shopping environment on various dependent variables. Therefore, respondents were asked to rate discrepancies between their actual appearance attributes and those of the models, who tend to have socially ideal bodies, on the website as well as the importance of the appearance attributes. In addition, respondents were asked to rate discrepancies between actual and ideal attributes to compare the two weighted discrepancy scores to see whether the discrepancies between actual/ideal and actual/ideal model on the website are correlated with each other (see Appendix Q for the questionnaire).

Body dissatisfaction. Body dissatisfaction was measured by three items; two items (weight and overall appearance dissatisfaction items) were borrowed from Heinberg and Thompson (1995) and one item (overall body shape dissatisfaction) was developed for the present study. The scale (Visual Analogue Scale) was originally created to measure

immediate state changes in body concern following the exposure to commercials. Because the measure requires respondents to make a slash on a line to indicate the level of concern with weight and overall appearance, it is simpler, less demanding (i.e., respondents might simply remember previous responses), and more sensitive, compared to specific questions asking for a numerical rating. In addition, the measure has been used in studies related to body image in the context of television commercial and magazine advertising (e.g., Heinberg & Thompson, 1995; Jung, Lennon, & Rudd, 2001; Kim & Lennon, 2007). Heinberg and Thompson (1995) used the measure to examine respondents' pre-post measures of body dissatisfaction after viewing television commercials. Kim and Lennon (2007) and Jung et al. (2001) used the scale to examine the influence of media images (e.g., fashion magazines) on body and overall appearance dissatisfaction. Because websites play a role as a type of commercial, it was considered to be appropriate to use the scale to measure body dissatisfaction in online shopping. The scale, however, does not measure body satisfaction. It was assumed that body dissatisfaction caused by exposure to ideal models was of most interest for this study.

The two body dissatisfaction items from Heinberg and Thompson were developed in a way that respondents rate the degree to which they feel on each of these items by placing a short vertical stroke on a 10 centimeter line. Their responses are scored to the nearest millimeter, creating a 101-point scale, with the endpoints of none (1) and very much (100). However, because the present study used a web-based survey, the scale was modified to a 10 point scale with the endpoints of none (1) and very much (10) (see Appendix Q for the questionnaire). The variables were scored such that higher scores reflect higher body dissatisfaction. Although Heinberg and Thompson did not report Cronbach *alpha* value of

the combined items, they reported the criterion validity established by testing the correlations between each of the weight and overall appearance dissatisfaction items and the Eating Disorders Inventory-Body Dissatisfaction Subscale (Garner, Olmstead, & Polivy, 1983) as .66, $p < .01$ and .76, $p < .01$, respectively. Jung et al. (2001) and Kim and Lennon (2007) reported Cronbach *alpha* values of .82 and .86, respectively.

Fashion involvement. To measure fashion involvement, six items were used, including three enduring and three situational fashion involvement items. The scale, originally including five items (three enduring and two situational involvement items), was developed by Lastovicka and Gardner (1979) and modified by Dholakia (2000). One situational involvement item, which specifically addresses the online shopping situation ("When purchasing the apparel item on this website, I would make a lot of effort to purchase the apparel item."), was developed for the present study. All items were modified to be used in the context of online apparel shopping (see Appendix Q for the questionnaire). The measure included a 7-point Likert-type scale with endpoints of "strongly disagree" (1) and "strongly agree" (7). The variables were scored such that higher scores reflect higher enduring and situational fashion involvement. The reliability of the scale reported by Dholakia (2000) was .85 for enduring involvement and .87 for situational involvement.

Concern with fit and size of garments. To measure concern with fit and size of garments, 22 items with 5-factors developed in Phase 2 for use in the online shopping context were developed in Phase 2 of this study (see Appendix Q for the questionnaire). The scale used a 7-point Likert-type scale with endpoints of "strongly disagree" (1) and "strongly agree" (7). The variables were scored such that higher scores reflect higher concerns with fit and size of garments. The reliabilities of the 5 factors reported in the exploratory factor

analysis ranged from .79 to .92, and those reported in the confirmatory factor analysis ranged from .72 to .91.

Loyalty intentions. Loyalty intentions were measured using a scale that included five purchase and two patronage intention items (see Appendix Q for the questionnaire). The scale was a 7-point Likert-type scale with endpoints of "strongly disagree" (1) and "strongly agree" (7). The variables were scored such that higher scores reflect higher loyalty intentions toward shopping with the retailer. The purchase intention items were borrowed from Park and Stoel (2005) and two patronage intention items were adopted from Kim and Lennon (2000a). Reliability of purchase intention reported by Park and Stoel (2005) was 0.84 and that of patronage intention reported by Kim and Lennon (2007a) was .91.

Demographic and Internet/Internet shopping use. Items asking respondents' demographic information and online shopping experiences were included (see Appendix Q for the questionnaire). Demographic items included gender, age, major, school year, and ethnic background. Age and major were open-ended questions, and gender, school year, and ethnic background were closed-end questions. Three online shopping experience questions were asked, using ordinal scales. One item ("Have you ever purchased apparel online?") was a nominal scale (yes or no). Two items, asking the frequency and amount of online shopping, were adopted from Cowart and Goldsmith (2007). The item asking the frequency of online apparel shopping ("In a typical month, how often do you purchase clothing online?") was rated on a 6-point scale, and the amount of online apparel shopping ("How much money did you spend for online clothing purchases over the past 30 days?") was rated on a 9-point ordinal scale (see Appendix Q for the questionnaire).

Website Stimuli

In the present study, respondents were asked to visit an apparel store website before answering questions. The process, in which respondents were exposed to apparel websites with human models wearing apparel for sale, was important because the present study was interested in how consumers' body image self-discrepancy was affected by comparing their actual body and that of ideal models on the website. Answering the self-model comparison questions through recall of previous online shopping experiences is likely to incorporate memory artifacts; consumers may not accurately remember the perceptions of the models on websites and may include exposure to plus size and non-mainstream models.

To select appropriate apparel store websites to be used in the survey, a pilot test was conducted using a convenience sample. The sample was recruited from a class, TC165 Trend and Consumer Analysis, in the Department of Apparel, Educational Studies, and Hospitality Management at Iowa State University. A total of 64 students, including 52 female and 12 male students, participated in the pilot test. Respondents were asked to list three apparel brand websites on which they browsed or for purchased apparel items, three apparel items that they have purchased through the websites, and their gender (see Appendix P for the questions). Because the scale development process was based on responses from females and the sample of the quantitative study (survey) included only female respondents, responses from the 12 male students were excluded from the analysis. As shown in Table 3.16., the most frequently visited websites were Victoria's Secret, American Eagle, Forever 21, Urban Outfitters, Gap, J. Crew, and Nordstrom. Websites that did not use human models were excluded to ensure that respondents were exposed to human models with ideal figures. Therefore, five websites, Victoria's Secret, Urban Outfitters, Gap, J.Crew, and Nordstrom

were used in the survey. In addition, dresses, T-shirts, and jeans were the most frequently purchased items; therefore, web pages including a model in these types of products, were selected from the five apparel store websites and included in the website stimulus links developed for the survey. Although specific web pages were linked in the survey to ensure that respondents were exposed to an apparel store website having an ideal human model, they were also asked to freely browse other website pages if they would like to.

Data Collection Procedure

Approval from the Institutional Reviewing Board (IRB) regarding the use of human subjects was acquired prior to the data collection (see Appendix N). A web-based, self-administered survey was used. In the recruiting email, the research introduction with consent elements, purpose of study, and expected time required for completion of the survey were included. Confidentiality and anonymity were assured. In addition, the drawing process, in which 10 respondents were randomly selected to receive a $30 retail store gift certificate, was explained (Appendix O). Finally, the survey URL was included in the email.

As the first step of the survey, the participants were asked to imagine that they were searching for an apparel item for themselves and asked to visit one of the apparel store websites listed by clicking the brand name. After browsing the websites, participants were asked to complete the questionnaire including body image self-discrepancy, body dissatisfaction, fashion involvement, concern with fit, loyalty intentions, and demographic information and online shopping experience items.

Table 3.16. Results of Pilot Test

	F
Please list three apparel brand websites on which you have browsed or purchased apparel items.	
American Eagle	15
Buckle	5
Gap	11
J.Crew	8
Nordstrom	8
Target	5
Urban Outfitters	9
Victoria's Secret	18
Forever21	13
J.C. Penny	4
Hollister	4
Armani Exchange	0
Puma	2
Northface	1
Please list three apparel items that you have purchased through online shopping.	
Dresses	20
Jeans	15
Shirts	9
Sweaters	8
Swimsuits	13
T-shirts	16
Jackets	8
Shorts	6
Sweatshirts	9

Data Analysis and Results

To analyze the data, descriptive statistics were calculated using SPSS 16.0 to examine the general properties of the variables, including means, standard deviations, minimum and maximum scores, skewness, and kurtosis. Frequency statistics were also calculated to analyze the demographic information and participants' online shopping behaviors. To deal with missing data, listwise deletion was used. First, a measurement model, including 47

indicators and 10 latent variables, was tested to evaluate the quality of the measures used in the model in terms of construct reliability and variances of the latent variables. The hypothesized model addressed by H1 through H7 was tested using a SEM technique with covariance matrix as an input, utilizing LISREL 8.7. Simultaneous maximum-likelihood-estimation procedure was used to examine the hypothesized relationship (Figure 1.1) among body image self-discrepancy, body dissatisfaction, fashion involvement, concerns with fit and size of garment, and loyalty intentions. The fit of the model was examined through RMSEA and incremental fit indices such as NFI, IFI, TLI, and CFI as well as *chi*-square tests. A decomposition of effects was performed to better understand the results and examine the predictive validity of the model. Finally, post-hoc tests were conducted to examine additional paths that might improve the fit and increase the explanatory power of the model.

Sample

Sample demographics were analyzed using frequency and descriptive statistics (see Table 3.17. A total of 389 responses were collected, resulting in a 13.0 percent response rate. Ten respondents randomly selected were given $30 retail store gift certificates as an incentive. Of these 389 responses, 348 were usable and 41 respondents, who did not complete the questionnaire, were eliminated from the data. The sample included female students, 50 percent of whose ages ranged between 19 and 22 with a mean age of 20 years old. Most respondents were Caucasian American (80 percent). About 49 percent of respondents were juniors or seniors, and 41 percent of respondents were graduate students. About 75 percent of respondents answered that they have purchased apparel online.

Table 3.17. Descriptive Statistics of Survey Sample Characteristics

	f	%	*M*	*SD*
Age	(*n* = 347)		25.0	7.45
18 years old	6	1.7		
19 years old	39	11.2		
20 years old	54	15.5		
21 years old	41	11.8		
22 years old	39	11.2		
23 years old	24	6.9		
24 years old	20	5.7		
25 years old	20	5.7		
26 years old	15	4.3		
27 years old	11	3.2		
28 years old	10	2.9		
29 years old	11	3.2		
30 years old or older	57	16.4		
Major	(*n* = 348)			
Biology	9	2.6		
Business	10	2.9		
Chemical engineering	6	1.7		
Elementary education	8	2.3		
Genetics	8	2.3		
Graphic design	8	2.3		
Journalism	11	3.2		
Marketing	11	3.2		
MBA	7	2.0		
Mechanical engineering	6	1.7		
Psychology	13	3.7		
Sociology	8	2.3		
Textiles and clothing	18	5.2		
Veterinary medicine	9	2.6		
Other	216	62.1		
School year	(*n* = 347)			
Freshman	6	1.7		
Sophomore	29	8.3		
Junior	86	24.7		
Senior	85	24.4		
Graduate	141	40.5		
Ethnicity	(*n* = 348)			
African American	9	2.6		
Caucasian/White American	279	80.2		
Latino/Hispanic American	13	3.7		
Asian American	21	6.0		
Other	13	3.7		

Table 3.17. (continued)

Have you ever purchased apparel online?	(*n* = 346)	
Yes	260	74.7
No	86	24.7
In a typical month, how often do you purchase clothing online?	(*n* = 346)	
None	199	57.2
1-2 times	135	38.8
3 -4 times	8	2.3
5-6 times	2	.6
7-8 times	1	.3
9-10 times	1	.3
How much money did you spend for online clothing purchases over the past 30 days?	(*n* = 345)	
$0-$75	280	80.5
$76-$150	45	12.9
$151-$225	12	3.4
$226-$300	3	.9
$301-$375	2	.6
$376-$450	1	.3
More than $600	2	.6

Results: Phase 3 (Hypothesized Model)

Descriptive statistics of items used to test the model are included in Appendix R. Although the evidence of nonnormality in data was detected from the nonnormality test, no adjustment techniques were used for the same reasons addressed in Phase 2.

Preliminary Analyses

First, all multi-item variables were subjected to factor and reliability (Cronbach *alpha*) analyses. For the factor analyses, principle component analyses with varimax rotation were performed. As a result of factor analysis of body image self-discrepancy items, the first item (height) was eliminated due to the low factor loading (< .50), and three factors were produced. The first factor, labeled face discrepancy, included three items (skin complexion,

hair texture and thickness, and facial features), the second factor, labeled body discrepancy, consisted of four items (muscle tone and definition, body proportion, weight, and chest size), and the third factor, labeled body strength discrepancy, included two items (physical strength and physical coordination). The reliabilities of items in the corresponding factors were .71, .77, and 79, respectively. However, only the items in the second factor (body discrepancy) were included for further analysis because the items in the first and second factors were not considered to be associated with fit and size of garments.

In order to examine whether the discrepancy between actual/ideal model on the website reflects the discrepancy between actual/personal ideal, correlation analyses were performed. Two composite scores were calculated by summing and averaging the scores from 10 items measuring the discrepancy between actual/ideal model on the website as well as 10 items measuring the discrepancy between actual/personal ideal. The correlation between the composite scores was .59, $p < .01$. Because only four items in the "Body discrepancy" factor were used in Phase 3, another correlation test was performed using the items. Again, two composite scores were calculated by summing and averaging the scores from four items measuring the body discrepancy between actual/ideal model on the website and four items measuring the body discrepancy between actual/personal ideal. The correlation between the composite scores was .69, $p < .01$. Therefore, the results showed that the discrepancy between respondents' actual body image and that of models in the websites was significantly correlated with the discrepancy between their actual body image and their personal body ideals.

As a result of factor analysis of body dissatisfaction, one dimensionality was confirmed, and the reliability of the three items loading .50 and higher was .88. The factor

analysis of the six fashion involvement items yielded two factors—enduring and situational involvement—and the reliabilities were .82 and .89, respectively. As a result of the confirmatory factor analysis with 22 concerns with fit and size of garment items, five factors were produced (see Table 3.14 for the factors and items). The reliabilities of the items in each factor ranged from .80 to .88 (see Table 3.18). Finally, the result of factor analysis with 7 loyalty intentions items confirmed one-dimensionality of the items, and the reliability was .96.

Measurement Model

A measurement model (confirmatory factor analysis), including 42 indicators and 10 latent variables, was tested to evaluate the quality of measures prior to testing the hypothesized model (H1-H7). The χ^2 goodness-of-fit statistic for the best fit model was significant, $\chi^2 = 1491.79$, $df = 774$, $p < .001$, indicating rejection of the perfect fit to the model. However, the model was considered to be a fair fit based on the RMSEA estimate of 0.052 (Browne & Cudeck, 1993), the NFI of 0.93, the NNFI of 0.97, and the CFI of 0.97. Table 3.18 shows the sign and statistical significance of each parameter estimate such as the path coefficients, the factor covariances, and the error variances. The results showed that all of the path coefficients (λ's on Figure 3. 3) were consistently positive and statistically significant ($p < .001$) at targeting latent variables in the model. No exceptionally large or small standard errors were detected. The standard errors of four body image self-discrepancy items ($\lambda_{39\ 10}$, $\lambda_{40\ 10}$, $\lambda_{41\ 10}$, and $\lambda_{42\ 10}$) tended to be larger, compared to other standard error values. However, no definitive standard of "small" and "large" standard errors has been established (Jöreskog, & Sörbom, 1989) because standard errors are affected by the units of measurement observed and/or latent variables, as well as the magnitude of the parameter

estimate itself. Researchers suggested that if a standard error is close to zero, the test statistic for its related parameter cannot be defined (Bentler, 1995), whereas, if a standard error is exceptionally large, the parameter cannot be determined (Jöreskog & Sörbom, 1989). The factor covariance (or correlation) estimates (φ's on Figure 3. 2) showed the magnitude and nature (positive or negative) of the relationships between latent variables. The error variance estimates (δ's and ε's on Figure 3. 3) were statistically significant at $p < .001$ and positive.

The construct reliabilities and variances were calculated based on the recommendation of Fornell and Larcker (1981) and presented in Table 3.19. The results revealed the convergent validity and discriminant validity of measurement models. However, the variances of body image self-discrepancy (.49) and concerns with an inability to try on in online shopping (.44) were lower than .50, the standard recommended by Fornell and Larcker (1981); if the variance is less than .50, the variance due to measurement error is larger than the variance explained by the construct. Therefore, the results should be taken into consideration when interpreting the latent model.

Table 3. 18. Parameter Estimates from the Measurement Model with 10 Latent Variables and 42 indicators: Hypothesized Model

	Est.	S.Est.	S.E.	*t*
Path coefficients				
$\lambda_{1\ 1}$	1.24	.79	.08	15.94***
$\lambda_{2\ 1}$	1.31	.79	.08	16.15***
$\lambda_{3\ 1}$	1.20	.75	.08	15.15***
$\lambda_{4\ 2}$	1.94	.76	.12	16.08***
$\lambda_{5\ 2}$	1.76	.82	.10	17.70***
$\lambda_{6\ 2}$	2.14	.94	.10	21.63***
$\lambda_{7\ 3}$	1.25	.74	.08	15.68***
$\lambda_{8\ 3}$	1.58	.90	.08	20.82***
$\lambda_{9\ 3}$	1.47	.90	.07	20.73***
$\lambda_{10\ 4}$	1.14	.77	.07	16.41***
$\lambda_{11\ 4}$	1.15	.66	.09	13.29***
$\lambda_{12\ 4}$	1.11	.88	.06	19.78***
$\lambda_{13\ 4}$	1.13	.80	.06	17.36***
$\lambda_{14\ 5}$	0.71	.60	.06	11.25***
$\lambda_{15\ 5}$	.99	.65	.08	12.39***
$\lambda_{16\ 5}$	.92	.69	.07	13.43***
$\lambda_{17\ 5}$	.87	.69	.07	13.31***
$\lambda_{18\ 5}$	.87	.70	.06	13.73***
$\lambda_{19\ 6}$	1.25	.66	.09	13.33***
$\lambda_{20\ 6}$	1.48	.81	.08	17.66***
$\lambda_{21\ 6}$	1.53	.81	.09	17.88***
$\lambda_{22\ 6}$	1.38	.77	.08	16.62***
$\lambda_{23\ 6}$	1.25	.72	.08	14.95***
$\lambda_{24\ 6}$	1.43	.81	.08	17.64***
$\lambda_{25\ 7}$	1.10	.63	.09	12.70***
$\lambda_{26\ 7}$	1.57	.72	.10	15.07***
$\lambda_{27\ 7}$	1.83	.93	.08	21.96***
$\lambda_{28\ 7}$	1.74	.90	.08	20.81***
$\lambda_{29\ 8}$	1.45	.77	.09	16.09***
$\lambda_{31\ 8}$	1.55	.91	.08	20.10***
$\lambda_{30\ 8}$	1.05	.69	.08	13.85***
$\lambda_{32\ 9}$	2.12	.93	.09	22.77***
$\lambda_{33\ 9}$	1.68	.78	.10	17.28***
$\lambda_{34\ 9}$	1.71	.83	.09	19.01***
$\lambda_{35\ 9}$	1.97	.92	.09	22.28***
$\lambda_{36\ 9}$	1.62	.82	.09	18.69***
$\lambda_{37\ 9}$	1.91	.94	.08	23.14***
$\lambda_{38\ 9}$	1.86	.86	.09	20.03***
$\lambda_{39\ 10}$	2.11	.67	.16	12.92***
$\lambda_{40\ 10}$	2.87	.83	.17	17.00***
$\lambda_{41\ 10}$	2.89	.77	.19	15.31***
$\lambda_{42\ 10}$	1.69	.48	.19	8.75***

a. Factor covariances and correlations are equal because all of the factor variances were identified to be 1.0.
Est. = parameter estimate; S. Est. = standardized estimate of parameter; S.E. = standard error

b. BISD (body image self-discrepancy); BDS (body dissatisfaction); EFAIN (enduring fashion involvement); SFAIN (situational fashion involvement); CFSG1, 2, 3, 4, and 5 (concerns with fit and size of the garment factor 1, 2, 3, 4, and 5, respectively); LOYAL (loyalty intentions)

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 3.18. (continued)

Factor covariance/correlations [a]				
$\varphi_{2\,1}$: EFAIN <¯¯> BDS[b]	.33	.33	.06	5.90***
$\varphi_{3\,1}$: EFAIN <¯¯> SFAIN	.49	.49	.05	9.84***
$\varphi_{4\,1}$: EFAIN <¯¯> CFSG1	-.08	-.08	.06	-1.28
$\varphi_{5\,1}$: EFAIN <¯¯> CFSG2	.06	.06	.07	.91
$\varphi_{6\,1}$: EFAIN <¯¯> CFSG3	.10	.10	.06	1.59
$\varphi_{7\,1}$: EFAIN <¯¯> CFSG4	-.04	-.04	.06	-.71
$\varphi_{8\,1}$: EFAIN <¯¯> CFSG5	-.11	-.11	.06	-1.78
$\varphi_{9\,1}$: EFAIN <¯¯> LOYAL	.39	.39	.05	7.48***
$\varphi_{10\,1}$: EFAIN <¯¯> BISD	.15	.15	.06	2.40*
$\varphi_{3\,2}$: BDS <¯¯> SFAIN	.13	.13	.06	2.32*
$\varphi_{4\,2}$: BDS <¯¯> CFSG1	.15	.15	.06	2.56*
$\varphi_{5\,2}$: BDS <¯¯> CFSG2	.23	.23	.06	3.78***
$\varphi_{6\,2}$: BDS <¯¯> CFSG3	.30	.30	.05	5.55***
$\varphi_{7\,2}$: BDS <¯¯> CFSG4	.16	.16	.06	2.82**
$\varphi_{8\,2}$: BDS <¯¯> CFSG5	.14	.14	.06	2.31
$\varphi_{9\,2}$: BDS <¯¯> LOYAL	.07	.07	.06	1.27
$\varphi_{10\,2}$: BDS <¯¯> BISD	.40	.40	.05	7.45***
$\varphi_{4\,3}$: SFAIN <¯¯> CFSG1	-.07	-.07	.06	-1.11
$\varphi_{5\,3}$: EFAIN <¯¯> CFSG2	.09	.09	.06	1.42
$\varphi_{6\,3}$: EFAIN <¯¯> CFSG3	.05	.05	.06	.91
φ_{73}: EFAIN <¯¯> CFSG4	-.08	-.08	.06	-1.36
$\varphi_{8\,3}$: EFAIN <¯¯> CFSG5	-.09	-.09	.06	-1.56
$\varphi_{9\,3}$: EFAIN <¯¯> LOYAL	.49	.49	.04	10.95***
$\varphi_{10\,3}$: EFAIN <¯¯> BISD	-.07	-.01	.06	-.16
$\varphi_{5\,4}$: CFSG1 <¯¯> CFSG2	.56	.56	.05	11.81***
$\varphi_{6\,4}$: CFSG1 <¯¯> CFSG3	.54	.54	.04	12.12***
$\varphi_{7\,4}$: CFSG1 <¯¯> CFSG4	.44	.44	.05	8.82***
$\varphi_{8\,4}$: CFSG1 <¯¯> CFSG5	.48	.48	.05	9.81***
$\varphi_{9\,4}$: CFSG1 <¯¯> LOYAL	-.27	-.27	.05	-4.92***
$\varphi_{10\,4}$: CFSG1 <¯¯> BISD	.22	.22	.06	3.59***
$\varphi_{6\,5}$: CFSG2 <¯¯> CFSG3	.39	.39	.06	7.15***
$\varphi_{7\,5}$: CFSG2 <¯¯> CFSG4	.38	.38	.05	6.97***
$\varphi_{8\,5}$: CFSG2 <¯¯> CFSG5	.50	.50	.05	9.74***
$\varphi_{9\,5}$: CFSG2 <¯¯> LOYAL	-.18	-.18	.06	-2.98**
$\varphi_{10\,5}$: CFSG2 <¯¯> BISD	.26	.26	.06	4.09***
$\varphi_{7\,6}$: CFSG3 <¯¯> CFSG4	.44	.44	.05	8.99***
$\varphi_{8\,6}$: CFSG3 <¯¯> CFSG5	.52	.52	.05	11.31***
$\varphi_{9\,6}$: CFSG3 <¯¯> LOYAL	-.24	-.24	.05	-4.31***
$\varphi_{10\,6}$: CFSG3 <¯¯> BISD	.31	.31	.06	5.49***
$\varphi_{8\,7}$: CFSG4 <¯¯> CFSG5	.50	.50	.05	10.59***
$\varphi_{9\,7}$: CFSG4 <¯¯> LOYAL	-.27	-.27	.05	-5.01***
$\varphi_{10\,7}$:CFSG4 <¯¯> BISD	.26	.26	.06	4.42***
$\varphi_{9\,8}$: CFSG5 <¯¯> LOYAL	-.35	-.35	.05	-6.78***
$\varphi_{10\,8}$: CFSG5 <¯¯>BISD	.24	.24	.06	3.91***
$\varphi_{10\,9}$: LOYAL <¯¯>BISD	-.14	-.14	.06	-2.32*

Table 3.18. (continued)

Error variances				
$\theta_{\varepsilon 1}$	.96	.38	.11	8.75***
$\theta_{\varepsilon 2}$	1.01	.37	.12	8.51***
$\theta_{\varepsilon 3}$	1.08	.43	.11	9.57***
$\theta_{\varepsilon 4}$	2.73	.42	.25	10.99***
$\theta_{\varepsilon 5}$	1.55	.33	.16	9.61***
$\theta_{\varepsilon 6}$	.63	.12	.17	3.81***
$\theta_{\varepsilon 7}$	1.28	.45	.11	11.57***
$\theta_{\varepsilon 8}$	.56	.18	.09	6.50***
$\theta_{\varepsilon 9}$	.50	.19	.08	6.65***
$\theta_{\varepsilon 10}$	.87	.40	.08	10.65***
$\theta_{\varepsilon 11}$	1.70	.56	.14	11.89***
$\theta_{\varepsilon 12}$	.37	.23	.05	7.52***
$\theta_{\varepsilon 13}$	.69	.35	.07	10.3***
$\theta_{\varepsilon 14}$	.91	.64	.08	11.58***
$\theta_{\varepsilon 15}$	1.34	.58	.12	11.11***
$\theta_{\varepsilon 16}$	.93	.52	.09	10.56***
$\theta_{\varepsilon 17}$	.84	.53	.08	10.63***
$\theta_{\varepsilon 18}$	.77	.51	.07	10.38***
$\theta_{\varepsilon 19}$	2.04	.57	.17	12.13***
$\theta_{\varepsilon 20}$	1.17	.35	.11	10.61***
$\theta_{\varepsilon 21}$	1.19	.34	.11	10.49***
$\theta_{\varepsilon 22}$	1.26	.40	.11	11.12***
$\theta_{\varepsilon 3}$	1.47	.48	.13	11.72***
$\theta_{\varepsilon 24}$	1.10	.35	.10	10.62***
$\theta_{\varepsilon 25}$	1.84	.60	.15	12.45***
$\theta_{\varepsilon 26}$	2.31	.48	.19	11.98***
$\theta_{\varepsilon 27}$	.55	.14	.09	5.84***
$\theta_{\varepsilon 28}$	.74	.20	.10	7.73***
$\theta_{\varepsilon 29}$	1.41	.40	.14	10.02***
$\theta_{\varepsilon 30}$	.51	.17	.11	4.79***
$\theta_{\varepsilon 31}$	1.21	.53	.11	11.43***
$\theta_{\varepsilon 32}$	.72	.14	.07	10.17***
$\theta_{\varepsilon 33}$	1.80	.39	.14	12.43***
$\theta_{\varepsilon 34}$	1.29	.31	.11	12.10***
$\theta_{\varepsilon 35}$	.74	.16	.07	10.64***
$\theta_{\varepsilon 36}$	1.24	.32	.10	12.17***
$\theta_{\varepsilon 37}$	.51	.12	.05	9.72***
$\theta_{\varepsilon 38}$	1.21	.26	.10	11.81***
$\theta_{\delta 1}$	5.49	.55	.50	10.95***
$\theta_{\delta 2}$	3.61	.31	.53	6.86***
$\theta_{\delta 3}$	5.84	.41	.65	9.00***
$\theta_{\delta 4}$	9.42	.77	.76	12.37***

a. Factor covariances and correlations are equal because all of the factor variances were identified to be 1.0.
Est. = parameter estimate; S. Est. = standardized estimate of parameter; S.E. = standard error

b. BISD (body image self-discrepancy); BDS (body dissatisfaction); EFAIN (enduring fashion involvement); SFAIN (situational fashion involvement); CFSG1, 2, 3, 4, and 5 (concerns with fit and size of the garment factor 1, 2, 3, 4, and 5, respectively); LOYAL (loyalty intentions)

*** $p < .001$; ** $p < .01$; * $p < .05$

Table 3.19. Results of Measurement Model with 10 Latent Variables and 42 Indicators

	Standardized Factor loading	Construct reliability	Variance[a]
Body Image Self-Discrepancy (α = .77)		.78	.49
1. Muscle tone an definition	.67		
2. Body proportion	.83		
3. Weight	.77		
4. Chest size	.48		
Body Dissatisfaction (α = .87)		.88	.71
1. Body weight dissatisfaction	.76		
2. Overall appearance dissatisfaction	.82		
3. Overall body shape dissatisfaction	.94		
Enduring Fashion Involvement (α = .82)		.85	.65
1. Because of my personality, I would rate apparel as being of the highest importance to me personally.	.79		
2. I could make connections or associations between important experiences in my life and apparel.	.79		
3. In general, apparel would allow others to see me as I would ideally like them to see me.	.75		
Situational Fashion Involvement (α = .88)		.89	.73
1. When purchasing the apparel item on this occasion, I would have a high level of interest in the purchase process.	.74		
2. On this particular occasion, I would put a lot of effort into the purchase of the apparel item.	.90		
3. When purchasing the apparel item on this website, I would make a lot of effort to purchase the apparel item.	.90		
Concerns with Overall Appearance (α = .84)		.86	.61
1. The garment may not look good on me.	.77		
2. I may feel uncomfortable in the garment.	.66		
3. The garment may not fit well	.88		
4. The size of the garment may not fit me.	.80		
Concerns with Inability to Try on in Online Shopping (α = .80)		.80	.44
1. Depending on brands, the garment fit may be different.	.60		
2. The garment may not fit all body shapes and sizes.	.65		
3. The fit of the garment may be different from what I see on the website.	.69		
4. The garment on the website may look different when I try it on at home.	.69		
5. The garment may fit differently on me than it fits on the model.	.70		

a. $\rho = \sum\lambda^2 / \sum\lambda^2 + \sum\varepsilon$, as $\sum\varepsilon$ = 1-SMC (Fornell & Larcker, 1981)

Table 3.19. (continued)

Concerns with Projecting a Correct Impression (α = .77)		.89	.59
1. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	.66		
2. The garment may not give other people a positive impression about me.	.81		
3. The garment may not give other people the right impression about me.	.81		
4. I may look weird in the garment.	.77		
5. The garment may be too revealing.	.72		
6. I may not project the self image that I want to show other people when wearing the garment.	.81		
Concerns with Unavailability of Size (α = .88)		.88	.65
1. I may not find my size in the store.	.63		
2. I may not find the exact size I am looking for in the store.	.73		
3. My body may not fit the garments selling in the store.	.93		
4. I may not find a garment that fits my body.	.90		
Concerns with Imagining Fit/Size in Online Shopping (α = .82)		.84	.63
1. Shopping in the website, I may have a hard time picturing myself wearing the garment.	.77		
2. I may have a hard time imagining the fit of the garment shopping in the website.	.91		
3. My guess about the garment fit may not be correct when shopping in the website.	.69		
Loyalty Intentions (α = .96)		.96	.76
1. How likely is it that in the upcoming year you would shop for apparel from the website that you saw today?	.93		
2. How likely is it that within the next 12 months you would buy the apparel item from the websites that you saw today?	.78		
3. How likely is it that you would actively seek out clothing items from the websites that you saw today in order to purchase an item?	.83		
4. How likely is it that you would buy clothing items from the websites?	.92		
5. How likely is it that you would buy apparel from the websites that you saw today if you found something you like?	.82		
6. How likely is it that you would revisit the websites that you visited today when you need to purchase other apparel items?	.94		
7. How likely is it that you would return to the website that you visited today?	.86		

a. $\rho = \sum\lambda^2 / \sum\lambda^2 + \sum\varepsilon$, as $\sum\varepsilon$ = 1-SMC (Fornell & Larcker, 1981)

Latent Model

The hypothesized model (latent model), including 42 indicators and 10 latent variables, was tested to examine the relationships among body image self-discrepancy, body dissatisfaction, fashion involvement (enduring and situational fashion involvement), concerns with fit and size of garments, and loyalty intentions. Figure 3.3 illustrates the graphical presentation of the latent model. Because five concerns with fit and size of garment factors were included in the model based on the findings of Phase 2, 5 sub-hypotheses (e.g., 4a, 4b, 4c, 4d, and 4e) for hypothesis 4, 5, 6, and 7 were created.

The χ^2 goodness-of-fit statistic for the best fit model was significant, $\chi^2 = 1601.55$, $df = 785$, $p < .001$, thereby rejecting perfect fit to the model. However, based on RMSEA (.055), NFI (.93), CFI (.96), and IFI (.96), the model was considered to show a fair fit.

Some complexities lead to adjustments of the model. Four paths [EFAIN[3] → CFSG[4] factor 2 (β_{51}); EFAIN → CFSG factor 3 (β_{61}); CFSG factor 2 → LOYAL (β_{95}); CFSG factor3 → LOYAL (β_{96})] showed different directions compared to the signs of those relationships on the correlation matrix. For example, the relationship (β_{95}) between concerns with an inability to try on in online shopping and loyalty intentions was negative based on the correlation matrix, but the latent model revealed a positive relationship between those variables. Because SEM deals with partial correlations among variables, it is assumed that the reversed sign was caused by the correlations between other variables, called a suppressor effect. This phenomenon occurs when the suppressor variable correlates with the dependent variable but also shares with other independent variables much information that is unrelated to the dependent variable. In this situation, a path coefficient between the suppressor variable and

[3] Enduring involvement
[4] Concerns with fit and size of garments

the dependent variable generates a sign opposite to that which is hypothesized (Maassen & Bakker, 2001). Maassen and Bakker (2001) suggest that we should not conclude that the direct effect different from that expected is in fact operating and if a suppressor variable and another independent variable are strongly related, then one of the variables or both can be dropped for reasons of parsimony. In this study, correlations between five concerns with fit and size of garments dimensions appeared to be quite strong (.38-.56), which may contribute to the reversed sign of the paths.

Therefore, first, the path (β_{96}) between concerns with projecting a correct impression (β_{96}* = .04, t = .52) and loyalty intentions was eliminated from the model. As a result of the *chi*-square difference test, two models (with and without β_{96}) were not significantly different ($\Delta\chi^2$ = .86, Δdf = 1), indicating that inclusion of the path does not contribute to the fit of the model. Therefore, the path (β_{95}) between concerns with inability to try on in an online shopping and loyalty intentions was eliminated from the model. As a result of the *chi*-square difference test, the *chi*-squares between two models (with and without β_{95}) were not significantly different ($\Delta\chi^2$ = .64, Δdf = 1). However, the path (β_{94}) between concerns with an ability to try on in online shopping and loyalty intentions became insignificant [(β_{94}* = -.17, t = -2.32) → (β_{94}* = -.11, t = -1.60)].

Because the deletion of β_{95} changed the significance of β_{94}, it was suspected that the suppressor effect was caused by the strong correlation between CFSG factor 1 and 2 (.56). Therefore, a latent model was tested, employing the indicators of CFSG factor 1 and 2 as indicators of a latent variable that, in turn, is specified as predicting loyalty intention. As a result, the path between the latent model, combining CFSG factor 1 and 2, and loyalty intention was insignificant (β_{94}* = -.08, t = -1.07).

Therefore, although the exclusion of the path (β_{95}) changed the significance of another path (β_{94}), the paths, β_{95} as well as β_{96}, were eliminated from the model, because the significant path coefficient of the β_{94} was considered a spurious relationship, influenced by other paths. Because the paths coefficients of the paths [EFAIN[5] → CFSG[6] factor 2 (β_{51}); EFAIN → CFSG factor 3 (β_{61})] were not significant, another latent model was tested, excluding four paths (β_{51}, β_{61}, β_{95}, and β_{96}). As a result of the *chi*-square difference test between the two models (with and without β_{51}, β_{61}, β_{95}, and β_{96}), the two models are not significantly different ($\Delta\chi^2 = .05$, $\Delta df = 4$), indicating that the inclusion of the four paths did not contribute to the improvement of the model fit. In addition, the significance of other paths, except β_{94} as explained, was consistent with those of the model with those paths. Therefore, the final latent model was reported without the four paths ($\chi^2 = 1601.50$, $df = 789$, $p = 0.0$; RMSEA = .054; NFI = .93; CFI = .96; and IFI = .96). Table 3.20 presents the results of the latent model.

Hypothesis tests. Hypothesis 1 predicted that body image self-discrepancy would positively influence body image dissatisfaction. The result revealed that body image self-discrepancy between actual body image and that of ideal models in the website is positively associated with body dissatisfaction, supporting Hypothesis 1. The squared multiple correlation (SMC) for body dissatisfaction was .17, indicating that body image self-discrepancy explained 15 percent of the variance in body dissatisfaction.

Hypothesis 2 proposed that body dissatisfaction would be related to enduring fashion involvement. The result showed that body dissatisfaction was positively associated with enduring fashion involvement, supporting Hypothesis 2. The SMC for enduring fashion

[5] Enduring involvement
[6] Concerns with fit and size of garments

involvement was. 11, suggesting that body dissatisfaction explained 11 percent of the variance in enduring fashion involvement.

Hypothesis 3 predicted that body dissatisfaction would be related to situational fashion involvement. The result revealed that body dissatisfaction was positively associated with situational fashion involvement, supporting Hypothesis 3. The SMC for situation fashion involvement was .02, implying that only two percent of the variance in situational fashion involvement was explained by body dissatisfaction.

Hypothesis 4 proposed that body dissatisfaction would positively influence concerns with fit and size of the garment factors [concerns with overall appearance (H4a), concerns with an inability to try on in online shopping (H4b), concerns with projecting a correct impression (H4c), concerns with unavailability of size (H4d), and concerns with imagining the fit/size in online shopping (H4e)]. The results showed that body dissatisfaction positively influenced all of the concerns with fit and size of garment factors, supporting Hypotheses 4a, 4b, 4c, 4d, and 4e.

Hypothesis 5 proposed that enduring fashion involvement would be positively associated with concerns with fit and size of the garment factors [concerns with overall appearance (H5a), concerns with an inability to try on in online shopping (H5b), concerns with projecting a correct impression (H5c), concerns with unavailability of size (H5d), and concerns with imagining the fit/size in online shopping (H5e)]. The results revealed that enduring fashion involvement was related to only concerns with imagining the fit/size in online shopping, but the nature of the relationship was negative. Therefore, Hypothesis 5 was not supported.

Hypothesis 6 predicted that situational fashion involvement would be positively related to concerns with fit and size of the garment factors [concerns with overall appearance (H6a), concerns with an inability to try on in online shopping (H6b), concerns with projecting a correct impression (H6c), concerns with unavailability of size (H6d), and concerns with imagining the fit/size in online shopping (H6e)]. However, the results showed that situational fashion involvement was associated with none of the concerns with fit and size of the garment factors; therefore, Hypotheses 6 was not supported.

The SMC of concerns with overall appearance was .04, concerns with an inability to try on in online shopping was .06, concerns with projecting correct impression was .10, concerns with unavailability of size was .04, and concerns with imagining the fit/size in online shopping was .05, indicating that four percent, six percent, ten percent, four percent, and five of the variances in each of the variables, respectively, were explained by enduring and situational fashion involvement as well as body dissatisfaction.

Hypothesis 7 proposed that concerns with fit and size of the garment factors [concerns with overall appearance (H7a), concerns with an inability to try on in online shopping (H7b), concerns with projecting a correct impression (H7c), concerns with unavailability of size (H7d), and concerns with imagining the fit/size in online shopping (H7e)] would negatively influence loyalty intentions. The results showed that only concerns with imagining the fit/size in online shopping was negative related to loyalty intentions, supporting Hypothesis 7e. The SMC of loyalty intentions was .15, suggesting that five concerns with fit and size of garments factor explained 15 percent of the variance in loyalty intentions.

Decomposition of effects. Decompositions of effects were calculated to increase understanding about the results and examine the predictive validity of the model. The results

showed that there was an indirect effect for body image self-discrepancy on enduring and situational fashion involvement through body dissatisfaction. In addition, body image self-discrepancy indirectly influenced concerns with fit and size of garment factors through body dissatisfaction, enduring fashion involvement, or situational fashion involvement. For example, the estimate of the indirect effect from body image self-discrepancy to concern with overall appearance through enduring fashion involvement was |.015| (.41x.33x-.11), body dissatisfaction was .082 (.41x.20), and situational fashion involvement was |.002| (.41x.13x-.04). The values indicate that 1.5 percent of the indict effect, 8.2 percent of the indirect effect, and 0.2 percent of the indirect effect are explained through enduring fashion involvement, body dissatisfaction, and situational fashion involvement, respectively. The estimates of indirect effects were calculated based on Shrout and Bolger (2002). Body image self-discrepancy also indirectly affected loyalty intentions through enduring and situational fashion involvement, body dissatisfaction, as well as five concerns with fit and size of garment factors. Body dissatisfaction indirectly influenced concerns with overall appearance through enduring and situational fashion involvement and affected loyalty intentions through enduring and situational fashion involvement and five concerns with fit and size of garment factors. Enduring fashion involvement indirectly affected loyalty intentions through five concerns with fit and size of garment factors.

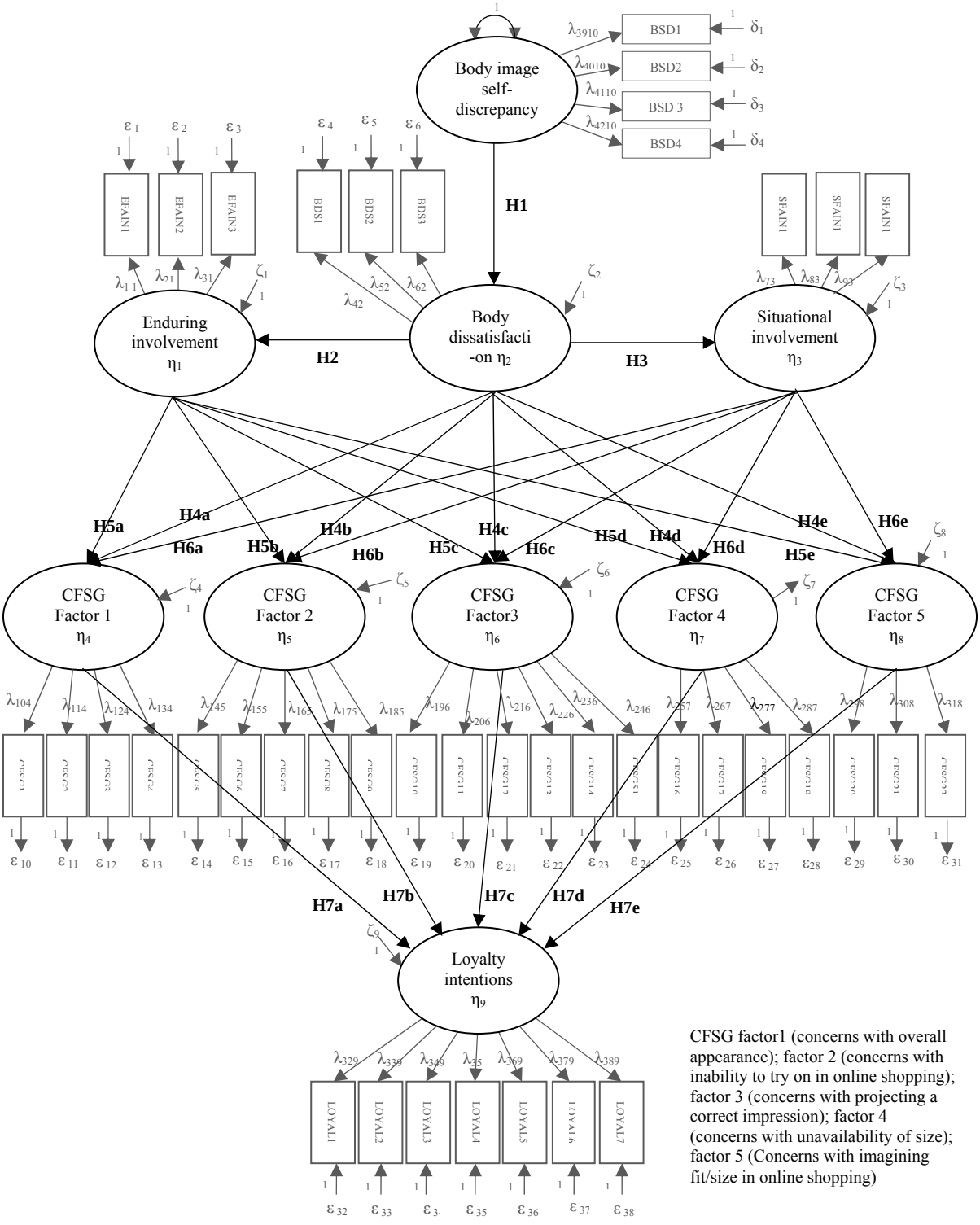


Figure 3.3. Path Diagram of the Latent Model with 10 Latent Variables and 42 Indictors

Table 3.20. Results of the Latent Model with 10 Latent Variables and 42 Indicators

HP	Path	Parameter	Est.	S. Est.	SE	*t*
H1	Body image self-discrepancy (ξ_1) → Body dissatisfaction (η_2)	γ_{21}	.79	.41	.12	6.55***
H2	Body dissatisfaction (η_2) → Enduring fashion involvement ($\eta 1$)	β_{12}	.21	.33	.04	5.29***
H3	Body dissatisfaction (η_2) → Situational fashion involvement (η_3)	β_{32}	.09	.13	.04	2.27*
H4a	Body dissatisfaction (η_2) →Concerns with overall appearance (η_4)	β_{42}	.12	.20	.04	3.11**
H4b	Body dissatisfaction (η_2) →Concerns with inability to try on in online shopping (η_5)	β_{52}	.08	.22	.02	3.45***
H4c	Body dissatisfaction (η_2) →Concerns with projecting a correct impression (η_6)	β_{62}	.20	.31	.04	4.94***
H4d	Body dissatisfaction (η_2) →Concerns with unavailability of size (η_7)	β_{72}	.11	.20	.04	3.13**
H4e	Body dissatisfaction (η_2) →Concerns with imagining fit/size in online shopping (η_8)	β_{82}	.14	.20	.05	3.05**
H5a	Enduring fashion involvement (η_1) →Concerns with overall appearance (η_4)	β_{41}	-.10	-.11	.06	-1.75
H5b	Enduring fashion involvement (η_1) →Concerns with inability to try on in online shopping (η_5)	β_{51}		Removed		
H5c	Enduring fashion involvement (η_1) →Concerns with projecting a correct impression (η_6)	β_{61}		Removed		
H5d	Enduring fashion involvement (η_1) →Concerns with unavailability of size (η_7)	β_{71}	-.06	-.06	.06	-.93
H5e	Enduring fashion involvement (η_1) →Concerns with imagining fit/size in online shopping (η_8)	β_{81}	-.17	-.14	.08	-2.13*
H6a	Situational fashion involvement (η_3) →Concerns with overall appearance (η_4)	β_{43}	-.04	-.04	.06	-.64
H6b	Situational fashion involvement (η_3) →Concerns with inability to try on in online shopping (η_5)	β_{53}	.03	.06	.04	.93
H6c	Situational fashion involvement (η_3) →Concerns with projecting a correct impression (η_6)	β_{63}	.01	.01	.06	.26
H6d	Situational fashion involvement (η_3) →Concerns with unavailability of size (η_7)	β_{73}	-.07	-.08	.06	-1.12
H6e	Situational fashion involvement (η_3) →Concerns with imagining fit/size in online shopping (η_8)	β_{83}	-.08	-.07	.08	-1.00

Est. = parameter estimate; S. Est. = standardized estimate of parameter; SE = standard error
*** $p < .001$, ** $p < .01$.* $p < .05$.

Table 3.20. (continued)

H7a	Concerns with overall appearance (η_4) → Loyalty intentions (η_9)	β_{94}	-.20	-.11	.12	-1.60
H7b	Concerns with inability to try on in online shopping (η_5) → Loyalty intentions (η_9)	β_{95}		Removed		
H7c	Concerns with projecting a correct impression (η_6) → Loyalty intentions (η_9)	β_{96}		Removed		
H7d	Concerns with unavailability of size (η_7) → Loyalty intentions (η_9)	β_{97}	-.17	-.09	.13	-1.31
H7e	Concerns with imagining fit/size in online shopping (η_8) → Loyalty intentions (η_9)	β_{98}	-.40	-.27	.10	-3.80***

Post-hoc Tests

In the latent model, the relationships between body image self-discrepancy and enduring and situational fashion involvement and between body image self-discrepancy and concerns with fit and size of garments were not included because there was not enough empirical evidence to support those relationships. However, the results of the present study showed that body image self-discrepancy was indirectly associated with enduring and situational fashion involvement through body dissatisfaction. In addition, body image self-discrepancy was indirectly related to the five concerns with fit and size of garment factors. Therefore, it is worth testing if there are also direct relationships between the variables.

Researchers have claimed that body image influences appearance management behaviors (e.g., clothing and cosmetics). Individual's body image may be affected by comparing themselves to ideal standards such as supermodels or other public images of beauty (Rudd & Lennon, 2000). Therefore, individual's tendency to compare themselves with ideal standards influences not only one's body image but also appearance management

Table 3.21. Decomposition of Direct, Indirect, and Total Effects for the Latent Model

Predictor variables	Dependent variables	Indirect effects	Direct effects	Total effects
Body image self-discrepancy	Body dissatisfaction		.41(6.55)***	.41(6.55)***
	Enduring fashion involvement	.14(4.29)***		.14(4.29)***
	Situational fashion involvement	.05(2.17)*		.05(2.17)*
	CFSG factor1	.06(2.43)*		.06(2.43)*
	CFSG factor2	.09(3.22)**		.09(3.22)**
	CFSG factor3	.13(4.14)***		.13(4.14)***
	CFSG factor4	.07(2.63)**		.07(2.63)**
	CFSG factor5	.06(2.19)*		.06(2.19)*
	Loyalty intentions	-.03(-2.58)**		-.03(-2.58)**
Body dissatisfaction	Enduring fashion involvement		.33(5.29)***	.33(5.29)***
	Situational fashion involvement		.13(2.27)*	.13(2.27)*
	CFSG factor1	-.04(-2.08)*	.20(3.11)**	.15(2.57)*
	CFSG factor2	.01(.87)	.22(3.45)***	.23(3.59)***
	CFSG factor3	.00(.26)	.31(4.94)***	.31(5.10)***
	CFSG factor4	-.03(-1.47)	.20(3.13)***	.17(2.82)**
	CFSG factor5		.20(3.05)**	.14(2.30)*
	Loyalty intentions	-.07(-2.76)**		-.07(-2.76)**
(SMC)				**.17**
Enduring fashion involvement	CFSG factor1		-.11(-1.75)	-.11(-1.75)
	CFSG factor2		Removed	
	CFSG factor3		Removed	
	CFSG factor4		-.06(-.93)	-.06(-.93)
	CFSG factor5		-.14(-2.13)*	-.14(-2.13)*
	Loyalty intentions	.06(2.34)*		.06(2.34)*
(SMC)				**.11**
Situational fashion involvement	CFSG factor1		-.04(-.64)	-.04(-.64)
	CFSG factor2		.06(.93)	.06(.93)
	CFSG factor3		.01(.26)	.01(.26)
	CFSG factor4		-.08(-1.12)	-.08(-1.12)
	CFSG factor5		-.07(-1.00)	-.07(-1.00)
	Loyalty intentions	.03(1.17)		.03(1.17)
(SMC)				**.02**
CFSG factor1	Loyalty intentions		-.11(-1.60)	-.11(-1.60)
(SMC)				**.04**

Note. Standardized path coefficients are reported with *t* values in parentheses.
EFAIN (enduring fashion involvement); SFAIN (situational fashion involvement); CFSG factor1 (concerns with overall appearance); factor 2 (concerns with inability to try on in online shopping); factor 3 (concerns with projecting a correct impression); factor 4 (concerns with unavailability of size); factor 5 (Concerns with imagining the fit/size in online shopping)
*** $p < .001$, ** $p < .01$.* $p < .05$.

Table 3.21. (continued)

CFSG factor2 **(SMC)**	Loyalty intentions	Removed	**.06**
CFSG factor3 **(SMC)**	Loyalty intentions	Removed	**.10**
CFSG factor4 **(SMC)**	Loyalty intentions	-.09(-1.31)	-.09(-1.31) **.04**
CFSG factor5 **(SMC)**	Loyalty intentions	-.27(-3.80)***	-.27(-3.80)*** **.05**

behaviors, including fashion involvement. As supported in this study, body image self-discrepancy is positively related to body dissatisfaction. In addition, body dissatisfaction affected fashion involvement. Individuals who felt a higher degree of concern with their body (body dissatisfaction) in terms of body weight, overall appearance, and overall body shape tended to show a higher degree of enduring and situational fashion involvement. Therefore, it can be assumed that individuals' perceived disparities between their actual bodies and those of ideal models may be positively related to fashion involvement.

According to cognitive dissonance theory (Festinger, 1957), in online shopping, individuals may experience cognitive dissonance between their cognition and new information when they perceive a higher degree of discrepancy between their actual bodies and those of ideal models on websites. Because their cognitions (i.e., actual body image) are inconsistent with the new information (i.e., ideal body of the model), individuals may be less confident about the information shown on the website and feel higher concerns with fit and size of garments in the specific purchase decision.

Therefore, latent models, including the paths between body image self-discrepancy and enduring and situational fashion involvement and paths between body image self-

discrepancy and five concerns with fit and size of garment, were tested to better understand the relationships between the variables.

First, the paths between body image self-discrepancy and enduring and situational fashion involvement were included in the model. As a result, the χ^2 goodness-of-fit statistic for the best fit model was significant ($\chi^2 = 1596.83$, $df = 787$, $p = 0.0$) and the model showed a fair fit based on RMSEA (.054), NFI (.93), CFI (.96), and IFI (.96). However, the *chi*-square difference test showed that there was no difference between the two models (with and without the paths between body image self-discrepancy and enduring and situational fashion involvement) ($\Delta\chi^2 = 4.67$, $\Delta df = 2$), indicating that the inclusion of the paths did not contribute to the improvement of the model fit. In addition, the paths between body image self-discrepancy and enduring ($\gamma_{11}* = .02$, $t = .24$) and situational ($\gamma_{31}* = -.8$, $t = -1.21$) fashion involvement were not significant. Therefore, the paths were not included in the further analyses.

Another latent model was tested, including the paths between body image self-discrepancy and five concerns with fit and size of garment factors. As a result, the χ^2 goodness-of-fit statistic for the best fit model was significant ($\chi^2 = 1574.41$, $df = 784$, $p = 0.0$) and the model showed a fair fit based on RMSEA (.054), NFI (.93), CFI (.96), and IFI (.96). The *chi*-square difference test showed that there was a significance difference between the two models (with and without the paths between five body image self-discrepancy and concerns with fit and size of garment factors) in terms of the *chi*-square ($\Delta\chi^2 = 27.09$, $\Delta df = 5$, $p < .001$), indicating that the inclusion of the paths significantly contributed to the improvement of the model fit. The paths between body image self-discrepancy and all concerns with fit and size of garment factors were significant [concerns with overall

appearance (γ_{41}* = .19, t = 2.73), concerns with inability of size (γ_{51}* = .20, t = 2.77), concerns with projecting a correct impression (γ_{61}* = .23, t = 3.34), concerns with unavailability of size (γ_{71}* = .23, t = 3.31), and concerns with imagining fit/size in online shopping (γ_{81}* = .22, t = 3.14)]. However, three out of five paths between body dissatisfaction and concerns with fit and size of garment factors became insignificant [concerns with overall appearance (γ_{41}* = .11, t = 1.67), concerns with an inability of size (γ_{51}* = .14, t = 1.96), concerns with projecting a correct impression (γ_{61}* = .21, t = 3.16), concerns with unavailability of size (γ_{71}* = .10, t = 1.50), and concerns with imagining the fit/size in online shopping (γ_{81}* = .10, t = 1.46)]. Because SEM deals with partial correlations among variables, the insignificant paths between body dissatisfaction and concerns with fit and size of garment factors were considered to be influenced by the paths between body image self-discrepancy and concerns with fit and size of garment factors. Therefore, it was concluded that the relationships between body image self-discrepancy and concerns with fit and size of garment factors and between body dissatisfaction and concerns with fit and size of garment factors should be tested in separate models. Therefore, another latent model was tested, deleting the paths between body dissatisfaction and concerns with fit and size of garment factors, but including the path between body image self-discrepancy and those five factors. The results showed that the χ^2 goodness-of-fit statistic for the best fit model was significant (χ^2 = 1582.33, df = 789, p = 0.0) and the model showed a fair fit based on RMSEA (.054), NFI (.93), CFI (.96), and IFI (.96). The paths between body image self-discrepancy and all concerns with fit and size of garment factors were significant [concerns with overall appearance (γ_{41}* = .24, t = 3.84), concerns with an inability of size (γ_{51}* = .27, t = 3.94), concerns with projecting a correct impression (γ_{61}* = .33, t = 5.16), concerns with

unavailability of size (γ_{71}* = .27, t = 4.31), and concerns with imagining the fit/size in online shopping (γ_{81}* = .27, t = 4.19)]. Throughout the tests, the significance of other paths remained consistent.

Although it was found that the relationships between body image self-discrepancy and five concerns with fit and size of garment factors were significant, no additional paths were included in the model based on the findings of the post-hoc tests. It was because the inclusion of the paths between body image self-discrepancy and enduring and situational fashion involvement were not significant and the addition of the paths between body image self-discrepancy and concerns with fit and size of garment factors changed the significances of existing paths.

Discussion

Phase 3 of the present study tested a hypothesized model to examine the relationships among body image self-discrepancy, body dissatisfaction, enduring and situational fashion involvement, concerns with fit and size of garments, and loyalty intentions in the context of online apparel shopping.

Body Image Self-Discrepancy and Body Dissatisfaction

Based on self-discrepancy theory, Hypothesis 1 predicted that body image self-discrepancy between an individual's actual body image and that of the ideal models on the website would be positively associated with body dissatisfaction. The results showed that individuals, who perceived a higher degree of discrepancy between their actual body image and ideal body images on websites, tended to feel a higher degree of body dissatisfaction. This finding supports self-discrepancy theory in the online shopping context and previous research that found the relationship between actual/ideal discrepancy and body dissatisfaction

in various contexts such as TV and advertising (e.g., Cash & Green, 1986; Cash & Szymanski, 1995; Grogan et al., 1996; Heinberg & Thompson, 1995; Strauman et al., 1991; Lerner & Karabenick, 1974; Lerner et al., 1973; Posavac et al., 1998). Analogous to other media, online shopping plays a role as an advertising tool. The ideal images shown on websites may influence consumers' body image self-discrepancies, which are associated with negative emotions such as body dissatisfaction.

Body Dissatisfaction and enduring and Situational Fashion Involvement

A non-directional relationship between body dissatisfaction and enduring and situational fashion involvement was hypothesized, due to the inconsistency of findings among previous studies. The results of this study revealed that body dissatisfaction was positively associated with both enduring and situational fashion involvement; individuals who perceived a higher degree of body dissatisfaction (body weight, overall appearance, and overall body shape) tended to show higher enduring and situational fashion involvement. The findings of this study support those of Kwon and Parham (1994) who found that young women who perceived higher body dissatisfaction (body weight) tended to focus more on clothing for camouflage of their bodies, assurance (i.e., self-confidence), and comfort/conceal, compared to young women who perceived lower body dissatisfaction.

In the present study, enduring fashion involvement referred to continuing concerns and interests about apparel independent of specific situations. Enduring fashion involvement was measured by the degree to which individuals believed that apparel is important and is associated with important experiences in their lives. In addition, enduring fashion involvement reflected the degree to which individuals believed that apparel would allow them to project their self-image as they would ideally like others to see them. Psychologists

have understood body image as an interface between the physical body and the social world (Howson, 2004). According to symbolic interaction theory, appearance is important for the establishment and maintenance of the self, because it contributes to meaning of self by establishing identification of the individual (Stone, 1965). Clothing, as a nonverbal symbol, is a significant part of appearance because, as Veblen (1954) pointed out, "we may escape our discursive obligations, but not our clothed appearance" (p. 167). Identification of the wearer through appearance is established not only by "responses made about the wearer by the wearer" (p. 22) (program), but also "responses made about the wearer of clothes by others" (p. 22) (reviews) (Stone, 1965). The self of the individual is validated if clothing program and reviews are consistent. On the other hand, the self is challenged if program and reviews are discrepant. Therefore, individuals who are dissatisfied with their bodies may be more concerned about how other people would respond to their appearance and, therefore, be more involved in fashion to improve their appearances and project a positive self-image to others. The results also indicate that body dissatisfaction is associated with situational fashion involvement. In this study, situational fashion involvement was measured as the degree to which individuals consider that they would have a high level of interest in apparel and make a lot of effort in the specific purchase situation. Therefore, individuals who feel a higher degree of body dissatisfaction not only tended to believe that apparel is important and improves their self-image in general, but also tended to have a high level of interest and put a great deal of effort to purchase apparel items for specific occasions. It must be noted, however, that the current study did not include a measure of body satisfaction, so we cannot from this data know whether high degrees of body dissatisfaction had any relationship to enduring and situational fashion involvement, as found in some studies.

Body Dissatisfaction and Concerns with Fit and Size of Garments

This study hypothesized that body dissatisfaction would be positively associated with concerns with fit and size of garments. The results showed that individuals who perceived a higher degree of body dissatisfaction (body weight, overall appearance, and overall body shape) tended to feel higher concerns with overall appearance, concerns with an inability to try on in online shopping, concerns with projecting a correct impression, concerns with unavailability of size, and concerns with imagining the fit/size in online shopping. Researchers have found that body dissatisfaction is related to negative attitudes toward apparel, lower confidence with apparel choice, and lower satisfaction with clothing as well as lower satisfaction with how they perceive the fit of garments (LaBat & DeLong, 1990; Shim & Kotsiopulos, 1990; Shim et al., 1990). Therefore, the finding of this study is consistent with the findings from previous research.

Individuals who were more concerned about their bodies are likely to be concerned that garments may not look good on them or at least not as good as on the ideal size models featured in websites. They are more concerned that garments might not fit well, that the size may not fit them, and that they may feel uncomfortable in the garment. Chaudhuri (1997) found that consumers' negative affect was strongly related to perceived risk. Ordering through the Internet introduces a number of risks related to fit.

Body dissatisfaction was found to be related to concerns with an inability to try on in online shopping. Online shopping has been associated with higher risk than in-store shopping (Lee & Tan, 2003), due to the lack of tactile information such as textures (Baker, 1986; Bitner, 1992) and an inability to directly inspect or try on the product. Individuals who perceived a higher degree of body dissatisfaction were more likely to think that the fit of the

garment is different from what they see on the website, that garments look different when they tried on at home, and that garments fit differently than shown on the models in the websites. In addition, they tended to believe that garments ordered through the Internet may not fit all body shapes and sizes.

Body dissatisfaction was related to concerns with projecting a correct impression. Individuals who were more dissatisfied with their bodies tended to be concerned that they may not give others a positive or correct impression about themselves when wearing a garment they purchase from a website. They were also concerned that the garment they purchase may reveal the parts of their body that they want to hide and may be too revealing. As the "looking-glass self" theory (Cooley, 1902) explains the self is shaped through the individual's imaginative processes in relation to other people; individuals imagine the others' judgments or appraisals. Therefore, self-concept or self-image is defined by role-taking, an estimation of how other people evaluate oneself. In online shopping, a consumer may imagine not only their own appearance in the garment, but also how other people respond to their appearance. Therefore, when they are not satisfied with and confident with their body, individuals may feel a higher degree of concern about others' appraisals of their appearance in the garments they purchase.

Body dissatisfaction influenced concerns with unavailability of size. Individuals who felt a higher degree of body dissatisfaction tended to be more concerned that they may not find their size and a garment that fits their bodies, that the website may not carry their sizes, and that their bodies may not fit the garments sold on the website. Consumers have experienced an inconsistency of the sizing system of apparel brands or stores, due to vanity or exclusionary sizing. Particularly, apparel brands targeting younger customers tend to

create exclusionary sizing to keep bigger consumers away from their stores in order to project a certain brand image—beautiful garments for only beautiful people. The brands or stores also project the images through their advertising campaigns, particularly the use of ideal models. Therefore, consumers' body dissatisfaction may directly influence concerns with the unavailability of sizes in online shopping.

In addition, body dissatisfaction was related to concerns with imagining the fit/size in online shopping. Individuals who felt a higher degree of body dissatisfaction tended to be more concerned that they may have a difficult time picturing themselves wearing the garment and imagining the fit of the garment sold on the website. Consumers cannot try on garments prior to purchase in online shopping and, therefore, consumers must guess the fit and size of the garment based on their previous experiences with the brand and with shopping in general. Perhaps individuals who are concerned about their bodies have had more difficulties with fit and are likely to be less confident with their guess about the fit and size of garments when shopping for apparel online.

Enduring and Situational Fashion Involvement and Concerns with Fit and Size of Garments

The present study assumed that enduring and situational fashion involvement would be positively related to concerns with fit and size of garments. However, the results revealed that enduring and situational fashion involvement did not influence any of the concerns with fit and size of garment factors, with the exception of the negative relationship between enduring fashion involvement and concerns with imagining the fit/size in online shopping. Venkatraman (1989) suggested that enduring involvement is a long-term product concern and, therefore, is a predictor of perceived risk. In addition, the experience of situational involvement is likely to cause cognitive evaluation of risk. Consumers who are more

situationally involved tend to perceive higher risks in purchase decisions (Flynn & Goldsmith, 1993b). However, the findings of the present study did not support those of previous research.

A possible explanation about these findings may be related to consumers' familiarity about the product category, apparel. Researchers have found that consumers' perceived risk is caused by specific product attributes, such as technological complexity, high price, and newness, as well as consumer-related factors such as inexperience with the product (e.g., Bettman, 1973; Locander & Hermann, 1979). Although fashion brands introduce new styles every season, consumers' cognitive evaluations of risk about new apparel styles may not be as risky as new technology or other innovative products they have not experienced previously, in terms of general product performance. Because consumers experienced similar apparel styles through their everyday lives, even though they are highly involved in fashion, it may not be necessarily associated with concerns or risks about how the apparel style they purchased works with their bodies. In addition, much of apparel in fashion today is relatively inexpensive compared to other product categories and can be classified as continuous innovation – product styling that changes in small ways from that of previous seasons rather in discontinuous, extreme leaps. Therefore, the two characteristics—lower price and limited change (low complexity)—help to reduce perceived risk (Bettman, 1973; Locander & Hermann, 1979) and encourage adoption of the product (Rogers, 1995).

Park and Stoel (2002) found that about 70 percent of online apparel retailers (click and mortar) provided consumers a convenient return method; consumers can return unsatisfactory items in any of their physical stores or via mail. Therefore, a convenient return policy may also decrease consumer's perceived risk or concerns with fit and size of garments regardless of the degree of their involvement in fashion.

In this study, fashion involvement referred to the extent of interest with the fashion product category, particularly apparel. Although an individual is not interested in apparel and believes that fashion is not very important in her life, it does not necessarily mean that the person does not care about the fit and size of garments when purchasing apparel online. One may not put a great importance on fashion, but still be concerned about her overall appearance presented by the dressed body, because one's appearance is important for the establishment and maintenance of the self (Stone, 1965).

This study found that enduring fashion involvement was negatively related to concerns with imagining fit/size of garments in online shopping. Individuals who showed a higher degree of enduring fashion involvement tended to feel lower concerns with imagining the fit/size of garments in online shopping. Folkes (1988) argued that the high level of product involvement influences consumers' judgments of probability of product failures, which leads them to perceive a higher degree of risk. In this study, a high level of involvement refers to the ease of retrieval of product performance experiences from memory, which may also refer to information acquired from product usage. However, the result of this study did not support the previous finding. Other studies, however, suggested that assessing information about the product is one of the risk-reduction strategies (Hugstad, Taylor, & Bruce, 1987). Individuals who are highly involved in fashion are likely to have a greater amount of information about and familiarity with apparel products because of their interest in fashion. Therefore, the product information stored in their memory may play a role to reduce concerns or risks with imagining the fit and size of garments when they shop for apparel online. Also, as discussed, because consumers are aware that they can return the faulty

selections through a convenient return method, the degree of consumers' fashion involvement may not be necessarily associated with concerns with fit and size of garments.

Concerns with Fit and Size of Garments and Loyalty Intentions

This study hypothesized a negative relationship between concerns with fit and size of garments and loyalty intentions. The results showed that concerns with overall appearance and unavailability of size were not related to loyalty intentions, whereas concerns with imagining the fit/size in online shopping was negatively associated with loyalty intentions. Individuals who have higher concerns may have a difficult time picturing themselves wearing a garment seen on the stimulus website and imagining the fit of the garment, and their guesses about garment fit may not be accurate when shopping on websites. Also, these consumers were less likely to purchase apparel items from the website and revisit the website. These findings support previous research, which found a negative relationship between perceived risk and loyalty intentions, including purchase and patronage intentions (Kim & Lennon, 2000a; Forsythe & Shi, 2003; Park & Stoel, 2005; Rosa et al., 2006).

However, concerns with overall appearance and unavailability of size did not influence loyalty intentions in this study. A possible explanation of insignificant relationships would be because the current study used existing apparel websites selected via the pretest. Respondents were allowed to select a website to visit among the five websites. Therefore, it is possible that respondents selected a website to which they were already loyal. In fact, 45 percent of the respondents answered that they had purchased apparel from the website they visited, which indicates that almost one-half of the respondents already had some experience with the specific website and have tried apparel items from the retailer. Therefore, respondents' experience with the website, and products and attitudes toward the brand may dilute the

relationship between concerns with overall appearance and unavailability of size and loyalty intentions. If that is the case, the negative relationship between concerns with imagining fit/size in online shopping and loyalty intentions is particularly important because even though consumers are familiar with the brand, its products, and have experience with the website, their concerns about imagining fit and size of garment and uncertainty about their guesses could influence consumers' loyalty intentions.

Body Image Self-Discrepancy and Concerns with Fit and Size of Garments

Although the relationships were not included in the model, the results of the post-hoc tests revealed positive relationships between body image self-discrepancy and concerns with fit and size of garment factors. According to cognitive dissonance theory (Festinger, 1957), when an individual confronts new information inconsistent with his or her existing cognitions, the person would experience cognitive dissonance. Therefore, in online shopping, if a consumer perceives that the body image of the model on the website is discrepant from his or her actual body image, the consumer may experience cognitive dissonance, which may lead him or her to perceive higher concerns with fit and size of garments in online shopping.

CHAPTER 4. OVERALL DISCUSSION AND CONCLUSION

This chapter summarizes the findings from the three phases of the present study and provides theoretical and managerial implications. Finally, limitations and recommendations for future research are offered.

Summary and Discussion

In spite of the fact that apparel is the most popular item in online shopping and consumers spent $9.6 billion online for apparel shopping in the U.S. in 2006 (Tedeschi, 2007), online purchases represent only 5 percent of overall apparel sales (Tedeschi, 2007), largely, perhaps, because of an inability try on and concerns with fit and sizing (Beck, 2003). Particularly, women between the ages of 19 and 30 had the most difficult time finding clothes that fit their bodies (Catan, 2008). Therefore, the relationship between consumers' body image and concerns with fit and size of garment has important implications to apparel retailers, particularly online apparel retailers.

This study consisted of three phases. First, focus group interviews were conducted to explore the domain of consumers' concerns with fit and size of garments in offline and online shopping. Results obtained from Phase1 were used to develop two quantitative scales to measure concerns with fit and size of garments in both offline and online shopping contexts. The quantitative scale development process was presented in Phase 2 of the present study. Finally using the scale developed for use in the online shopping context, Phase 3 empirically tested the hypothesized model to examine the relationship between body image self-discrepancy, body dissatisfaction, enduring and situational fashion involvement, concerns with fit and size of garments, and loyalty intentions. This study study specifically

focused on young female consumers, and the characteristics of the samples were maintained throughout Phase 2 and 3.

Phase 1: Focus Group Interview

As a result of the content analysis from Phase 1, seven possible themes emerged for concerns with fit and size of garments in apparel shopping, encompassing both offline and online shopping. The findings showed that the domain of concerns with fit and size of garments consists of multiple, interrelated dimensions. The seven themes included: (1) concerns with unavailability of size, (2) concerns with body image and overall appearance, (3) concerns with product performance, (4) concerns with uncertainty about the sizing system of apparel stores (brands), (5) concerns with physical comfort, (6) concerns with projecting a correct impression, and (7) concerns with inability to try on garments in online shopping.

"Concerns with body image and overall appearance" was the most frequently mentioned theme among seven themes. The general category of ideas referred to concerns with fit and size of garments associated with individuals' body image, dissatisfaction with particular body parts, and overall appearance when wearing garments. This theme reflected individuals' desires to enhance their body image and appearance by emphasizing positive parts or hiding less desirable parts of their bodies through correct fit and size of garments.

Concerns with uncertainty about the sizing system represented individuals' concerns with fit and size of garments related to the inaccurate and inconsistent sizing systems of apparel stores or brands. Many fashion brands have created their own sizing systems, called vanity or exclusionary sizing, as a marketing strategy. Therefore, this theme reflected consumers' distrust about the sizing system of brands and concerns about a failure to find the right size. Although an inconsistent and inaccurate sizing system is a serious issue in both

offline and online shopping forcing consumers to put a lot of effort toward finding a correct fit and size, this type of concern appeared be even more serious in online shopping because consumers cannot try on the product before ordering to check the size. Time and money can be wasted if alternate sizes must be ordered and returns must be made.

Concerns with product performance referred to individuals' concerns about whether the garment fit and performed well on their bodies. Most of the comments classified in this theme included whether the garment fit properly, correctly, precisely, or perfectly. This type of concern also appeared as a concern in both offline as well as online shopping. In addition, this concern seemed to be closely related to the previous theme, concerns with uncertainty about the sizing system.

Concerns with projecting a correct impression addressed individuals' psychological concerns related to others' evaluation or judgment about their appearance when wearing the garment they purchased. This theme reflected the individual's endeavor to project a correct and positive impression to others by wearing a well fitting garment. Therefore, apparel that fits right plays an important role as a nonverbal symbol to express who young women are.

Concerns with unavailability of size referred to individuals' concerns about not finding a size or making an additional effort to find the right size and fit when shopping for apparel. It appeared that this type of concern was caused due to stock-out situations in both offline and online shopping and was associated with concerns about body image or dissatisfaction with certain body parts (e.g., being overweight, having short legs).

Concerns with physical comfort represented concerns with fit and size of garments related to bodily discomfort or physical risk in apparel shopping. This type of concern was mentioned only twice and was addressed by a subtheme, uncomfortable.

Finally, the last theme represented concerns with fit and size related to an inability to try on the garment in online shopping and was the second most frequently mentioned theme. This type of concern stemmed from the fact that consumers cannot try on and must guess the fit and size of the garment. Particularly, the discrepancy between consumers' actual bodies and those of ideal models on the website seemed to increase concerns and risks with fit and size of garments in online apparel shopping.

Phase 2: Scale Development

Based on the findings from the focus group interviews, two concerns with fit and size of garment scales were developed for offline and online shopping. The content, construct, and criterion validity and reliability of the scales were established.

As a result of exploratory and confirmatory factor analyses, for the offline shopping context, five dimensions, including 22 items, were identified and consisted of: (1) concerns with body image and overall appearance, (2) concerns with product performance, (3) concerns with unavailability of size, (4) concerns with projecting a correct impression, and (5) concerns with uncertainty about the sizing system. The first factor, concerns with body image and overall appearance, included items associated with body image (e.g., look bigger, too tight), overall appearance (e.g., looks good on me), comfort (e.g., feel uncomfortable), and fit performance (e.g., the garment may not fit well). The second factor, concerns with product performance, was addressed by items related to whether the garment fit properly, correctly, and precisely. The third factor, concerns with unavailability of size, consisted of items associated with not finding a size or fit that the consumer is looking for. The fourth factor, concerns with projecting a correct impression, was explained by items related to whether the garment may not give other people a correct and positive impression about the

person and whether the individual may not project the self-image that they want to show other people when wearing the garment. The fifth factor, concerns with uncertainty about the sizing system, consisted of items reflecting consumers' distrust about the sizing system of apparel brands and concerns about whether the sizing system of retailers may be inaccurate and inconsistent.

For the online shopping context, seven factors were initially identified. Five out of the seven factors were consistent with those identified in the offline shopping context. However, two additional factors, including concerns with an inability to try on and with imagining the fit and size in online shopping, which specifically addressed the concerns with fit and size of garments in online shopping, were identified. These findings support that consumers tend to perceive a higher degree of risk in online shopping compared to offline shopping (Lee & Tan, 2003). Although seven factors were yielded as an initial solution, because the purpose of Phase 2 was to develop a scale for use in Phase 3 (test of the hypothesized model), the five factor solution, including 22 items, was determined as the final factor solution, considering a model parsimony issue. The five dimensions consisted of: (1) concerns with overall appearance, (2) concerns with unavailability of size, (3) concerns with projecting a correct impression, (4) concerns with inability to try on in online shopping, and (5) concerns with imagining fit/size in online shopping. The first factor, concerns with overall appearance, included items related to overall appearance (e.g., look good on me), comfort (e.g., feel uncomfortable), and fit performance (e.g., the garment may not fit well). The second factor, concerns with unavailability of size, and the third factor, concerns with projecting a correct impression, were explained by the same items used in the offline context. The fourth factor, concerns with an inability to try on in online shopping, included items measuring concerns

about whether the actual fit of the garment may be different from the fit shown on the website or whether the fit of the garment may be different when the consumer actually tries it on. The fifth factor, concerns with imagining fit/size in online shopping, was explained by items related to consumers' concerns associated with imagining the fit and size of the garment in online shopping.

Phase 3: Hypothesized Model

In Phase 3, a hypothesized model investigating the relationships among body image self-discrepancy, body dissatisfaction, enduring and situational fashion involvement, concerns with fit and size of garments, and loyalty intentions, was tested using a SEM technique. The results revealed that body image self-discrepancy was positively related to body dissatisfaction. Body dissatisfaction was also positively related to enduring and situational fashion involvement. Body dissatisfaction was positively associated with five concerns with fit and size of garment dimensions, including concerns with overall appearance, concerns with an inability to try on in online shopping, concerns with projecting a correct impression, concerns with unavailability of size, and concerns with imagining fit/size in online shopping. On the other hand, the relationships between enduring and situational fashion involvement and five concerns with fit and size of garment dimensions were found to be insignificant, except the relationship between enduring fashion involvement and concerns with imagining fit/size in online shopping. Finally, concerns with overall appearance and concerns with unavailability of size did not influence loyalty intentions; whereas, concerns with imagining fit/size in online shopping negatively affected loyalty intentions.

Post-hoc tests were performed to better understand the relationship between variables, which were not hypothesized in the model. The results showed that body image self-discrepancy was related to neither enduring nor situational fashion involvement. In addition, the relationships between body image self-discrepancy and five concerns with fit and size of garment dimensions were tested. While body image self-discrepancy was positively associated with all five of the concerns with fit and size of garment dimensions, the addition of the paths influenced the paths between body dissatisfaction and five concerns with fit and size of garment dimensions. When the paths between body image self-discrepancy and five concerns with fit and size of garment dimensions were added, the paths between body dissatisfaction and concerns with overall appearance, concerns with unavailability of size, and concerns with fit/size in online shopping became insignificant. Therefore, although it was found that body image self-discrepancy also positively influenced concerns with fit and size of garment dimensions, no additional paths were added to the final model based on the results of the post-hoc tests.

Conclusions and Implications

Findings from the three phases of the study provide understanding about the domain of consumers' concerns with fit and size of garments and the mechanism of how consumers' perceived body image self-discrepancy influences body dissatisfaction, fashion involvement, concerns with fit and size of garments as well as loyalty intentions in an online shopping environment. This study identified the possible dimensions of concerns with fit and size of garments through a qualitative study (focus group interview) and developed quantitative scales with which to separately measure the domain in two different apparel shopping channels. This study also proposed a model, explaining the effect of consumers' body image

self-discrepancy experienced in an online shopping environment on body dissatisfaction, fashion involvement, concerns with fit and size of garments, and loyalty intentions. Therefore, findings of the present study contribute to the literature by applying two cognitive psychology theories in the context of online shopping. In addition, the findings of the present study are a contribution to multi-channel apparel retailers by providing information concerning how the use of ideal models influences consumer's concerns with fit and size of garments and purchase/revisit intentions and how they can effectively display body-related information to influence the decision making process of consumers with various body types in online apparel shopping. By designing their websites using more realistic visual devices (e.g., use of models with various body types and technology combining body scanning data), online apparel retailers can reduce the product return rates due to inaccurate the fit and size of garments. Reducing return rates would save customers money frustration and in turn may improve customer loyalty. The retailer will then in the long run increase sales and profits.

Theoretical Implications

Self-discrepancy theory (Higgins, 1987) suggests that individual's inconsistent beliefs or disparities may occur when those attributes possessed by the actual self are discrepant from those attributes possessed by the ideal self that the individual hopes or wishes to achieve. These inconsistent beliefs or disparities may lead to negative emotional states, such as disappointment and dissatisfaction. Cultural standards for ideal beauty cultivate the development of discrepancies between the actual ideal self because individuals evaluate their appearances, comparing themselves with the ideal standard. Researchers have found that young women who were exposed to images of ideal models in media tended to state negative evaluations of their bodies (Irving, 199) and body dissatisfaction (Altabe & Thompson, 1996;

Heinberg & Thompson, 1995; Jung, 2006; Stice & Shaw, 1994). Self-discrepancy theory has been applied to various research contexts, such as TV ads (e.g., Heinberg & Thompson, 1995; Lavine et al., 1999) and advertisements (e.g., Bessenoff, 2006; Grogan et al., 1996). However, no research has applied the theory in the apparel retailing context, online shopping. Based on self-discrepancy theory, this study revealed that analogous to other media, consumers' perceived discrepancies between actual and ideal body images on commercial websites were also associated with body dissatisfaction, which influenced consumers' concerns with fit and size of garments.

In addition, this study used the theory of cognitive dissonance (Festinger, 1957) to explain the effect of body image self-discrepancy and body dissatisfaction on consumers' fashion involvement and concerns with fit and size of garments. The theory posits that when an individual confronts a new event or information that is inconsistent with one's existing cognition, a state of dissonance is created. The presence of dissonance results in psychological discomfort, and, therefore, the individual tries to reduce dissonance to regain consonance. Findings revealed that in online apparel shopping, consumers' perceived discrepancies between their body image and that of ideal model on the website was associated with body dissatisfaction. Individuals who had higher body dissatisfaction tended to be more involved in fashion, possibly to improve their body image and reduce body dissatisfaction. In addition, body dissatisfaction influenced individual's cognitive information processing, concerns with fit and size of garments.

Managerial Implications

Researchers and marketing practitioners have been interested in how they facilitate consumers' information processing in online shopping using visual and verbal information.

Particularly, because the consumption experience of apparel is acquired through body-related information such as fit or touch, e-retailers have developed various technology devices, such as enlargement, pan, zoom, and virtual models, to help consumers visualize the product or consumption experience with the product. In addition, researchers have investigated the effects of these visual devices on consumers' emotional, cognitive, or behavioral responses in online apparel shopping (e.g., Kim & Lennon, 2007a; Kim & Lennon, 2008; Park, Lennon, & Stoel, 2005).

The present study found that consumers' perceived discrepancies between actual and ideal body image were related to consumer's body dissatisfaction and concerns with fit and size of garments in online shopping. However, the findings do not necessarily mean that online apparel retailers should not use ideal models in their websites. Rather, the findings of the present study imply that e-retailers need to use advanced devices to effectively assist consumers of various sizes to visualize the fit and size of the garment. For example, Lands' End presents styles on different body sizes. Therefore, consumers can look at the fit of the garment on a more similar body shape by clicking the regular or plus button. This type of device may be helpful for consumers to imagine the fit and size of the garment and may decrease perceived body discrepancy between their actual body image and that of the model on the website.

Another way to facilitate consumers' information processing related to fit and size of garments would be the use of body scanning data in online apparel shopping. The U.S. population is so physically diverse that providing quality fit of garments has been one of the greatest challenges of apparel companies (Ashdown, Loker, & Adelson, 2005; Lang, 2008). In fact, one-half of women reported that they cannot find apparel that fits. Fit and size issues

are the reason behind 50 percent of catalog returns (DesMarteau, 2000) and are a primary reason for not purchasing apparel online (Beck, 2003). The body scanning system or body scan data is known to provide new insights into apparel fit and sizing problems (Ashdown et al., 2005). Body scan data may be used in two ways for the improvement of fit and size of garment issues in the fashion industry: (1) to develop a new sizing system, which reduce issues caused by vanity and exclusionary sizing and (2) to assist consumers to choose accurate sizes that fit their bodies in online shopping.

As suggested by consumers in the focus group interviews, fashion companies have created their own sizing systems in order to distinguish their garments from those of their competitors or to attract certain types of consumers (Loker, Ashdown, & Schoenfelder, 2005). Researchers suggest an alternative way to improve each apparel brand's distinctive sizing to fit more consumers within their target group. This approach is logistically and financially achievable using the 3-D body scanner and computer aided design (CAD) grading (Loker et al., 2005). For example, Lane Bryant, a U.S. plus-size apparel company, has created a new line of Right Fit jeans based on scans of 14,000 customers (Mulrooney, 2008). Therefore, fashion companies may use body scanning to develop products that better fit their target customers instead of using existing systems that have not been based on target market body data.

In addition, although the system has not been widely used in the fashion industry yet, consumers may use their own body-scan measurements to buy custom-fit garments or choose an accurate fit and size in online shopping (Lang, 2008). For example, myShape.com, a new Internet company, recorded the measurements of about 20,000 customers. When their customers provide their basic body measurements and style preferences, they are guided to

all the available apparel styles that would fit their bodies well (Tedeschi, 2007). The company currently uses measurements provided by each of their customers; once body scan data replace manually produced physical measurements, fashion companies may be able to use the data for the mass customization of garments. In addition, fashion companies may share consumers' body scan data so that consumers can use their body scan data in multiple brands or stores.

As found in the present study, when shopping for apparel online, consumers have to guess the fit and size of garments based on the fit and size on the model on the website. However, consumers whose bodies are far from those of ideal models on the website may feel a higher degree of body image self-discrepancy as well as body dissatisfaction, which may enhance concerns with fit and size of garments. Therefore, by adopting body scan data in online apparel shopping, e-retailers may be able to decrease consumers' cognitive efforts and perceived risks caused by guessing the fit and size of garments and facilitate consumers' decision making process.

In this study, the findings from the focus group interviews revealed issues related to current practices in the fashion industry. Concerns with fit and size of garments related to body image appeared to be influenced by the use of ideal images in the fashion industry. Because apparel companies display and advertise their products on ideal models or figures to increase the desirability of the products, consumers may feel disparities between their bodies and those of ideal models. The findings of this study provide apparel retailers valuable information that this ideal-oriented marketing strategy may not always produce positive outcomes; the use of unrealistic models and consumers' perceived discrepancy between actual/ideal body image influence body dissatisfaction as well as concerns with fit and size of

garment, which may decrease consumers' purchase intentions, particularly in online shopping. Fashion companies link their products to socially desirable figures as beautiful "hangers" for their clothing, fostering the societal culture that beauty is virtue. However, exposure to ideal images in fashion magazines has been found to be associated with not only consumers' body dissatisfaction but also higher risk of eating disorder tendencies (Kim & Lennon, 2007b). Therefore, from a social responsibility point of view, apparel retailers and marketers should consider the negative effects caused by using unrealistic models and use more realistic models in addition to ideal–sized models to display their products in various marketing formats (e.g., magazines, catalogues, and websites). In fact, some retailers selling apparel (e.g., Kmart) have used average or oversize models in their advertisements as well as ideal models. The use of realistic models may reduce not only the consumers' perceived pressure to be thin but also discrepancy between actual/ideal body image so that the consumer can more effectively process information provided by websites, decreasing concerns with fit and size of garments in online shopping.

The focus group interviews also showed that the inconsistent and inaccurate sizing system due to vanity and exclusionary sizing appeared to be associated with concerns with fit and size of garments. As a result of adjustments of sizing for store image purposes, clothes are becoming bigger or smaller within size ranges that were previously somewhat consistent, making consumers even more confused about what size to order. Consumers may feel that apparel retailers are trying to deceive them into thinking that they are slimmer than they are in order to make them purchase their products or slim enough to deserve to wear a brand. In fact, it was found that some of the respondents mentioned they were annoyed that they had to spend a lot of time trying on garments in fitting rooms and/or returning ill-fitting products

purchased from websites. Therefore, the findings of this study are meaningful in that they disclosed consumers' dissatisfaction concerning the inconsistent sizing systems of apparel retailers and brands and how the sizing system influences consumers' cognitive and behavioral responses in offline as well as online shopping.

Limitations

Female undergraduate students were respondents throughout the scale development process and test of the hypothesized model. Particularly, the random samples were drawn from students enrolled at Iowa State University in the specific semesters the study was conducted. Although the specific population of subjects was selected for the purpose of this study, caution needs to be made when generalizing the findings to other consumer groups. However, researchers suggest that a probabilistic sample representing the entire population is not required for studies aiming at theory application (Calder, Phillips, & Tybout, 1981), because the goal of studies for theory application is not profiling the population of individuals but identifying whether the phenomenon of interest (i.e., relationships between variables) exists. Therefore, although the validity of the findings from this study should not be limited by the narrow definition of the sample used in this study, more research is needed to confidently generalize the findings.

In Phase 3 (test of hypothesized model), respondents were asked to visit an apparel store website before answering questions, and five apparel websites were selected from existing apparel websites. The websites were the five most frequently visited or purchased from apparel websites by female undergraduate students drawn from university specific classes. In the survey, respondents were also asked to choose one of the five websites to visit. Therefore, it is possible that respondents selected an apparel store website for which they

already have some degree of loyalty toward the brand. The store image or respondents' attitudes toward the brand or store might influence their responses, particularly, loyalty intentions. In addition, about 45 percent of respondents answered that they have purchased from the website they visited, whereas 55 percent of respondents answered that they have not shopped from the website visited. Therefore, respondents' shopping experience in the specific store might also influence their loyalty intentions. Thus, the brand effect on dependent variables should be taken into consideration when the results are interpreted.

Future Research Suggestions

Because Phase 3 used existing websites, the brand image or respondents' perception and attitude toward the brand might affect their responses. Therefore, future research may test the model using an experiment to control extraneous factors that might influence the dependent variables. Mock websites should be developed eliminating any identifications associated with a specific brand.

Online apparel retailers have utilized various innovative devices, such as zoom and pan functions to allow consumers to inspect the product details from different distances and angles and facilitate the imagery process of picturing themselves in the garment. The use of virtual models (e.g., Land's End) also helps consumers to indirectly experience the product by creating a model that is close to their physical characteristics (e.g., weight, height, body shape, face). These innovative technological devices provide consumers with virtual experiences that substitute for direct experiences with the products (Weathers & Makienko, 2006). Researchers have examined the effect of these technology devices on consumer's responses, including emotions, perceived risk, and purchase intentions in online apparel shopping (Kim & Lennon, 2007a; Kim & Lennon, 2008; Park, Lennon, & Stoel, 2005).

However, the effect of these devices on concerns with fit and size of garments has not been investigated. Therefore, future research might investigate the relationship between the use of these types of visual devices (e.g., My Virtual Model) on concerns with fit and size of garments during the product ordering and purchase process.

This study found that disparity occurred when an individual perceived that their actual body image was discrepant from that of the ideal model on the website. Therefore, future research may also investigate the effect of the use of models of different body sizes (i.e., petite, regular, and plus) on body image self-discrepancy and consumers' concerns with fit and size of garments, using an experimental approach. These types of studies will provide apparel online retailers valuable information about how to display body-related information, particularly, visual information, on the websites to assist consumers of various body types.

Many studies applying self-discrepancy theory have used a sample consisting of young female and mostly undergraduate students (e.g., Bessenoff, 2006; Bessenoff & Snow, 2006; Heinberg & Thompson, 1995; Anton et al., 2000). In fact, research showed that young adult women were the most dissatisfied with their bodies of any age group (Cash, Winstead, & Janda, 1986). Although the present study also examined this population, the degree of body image self-discrepancy between actual/ideal body image as well as its effect on concerns with fit and size of garments may be different among consumers in different age groups or gender. McLean (1978) conducted research using 242 women, aged 20 to 89 and found that satisfaction with the body and with clothing did not necessarily tend to decline with age. The study showed that women between 20 and 39 years tended to be less satisfied with their bodies than were older women between 70 and 89. Therefore, future research may test the model using different consumer groups, such as middle-aged women. In addition,

researchers have found differences between males and females in attitude toward the body (e.g., Bartky, 1990). Therefore, future research may investigate the effect of body image on fashion involvement, concerns with fit and size of garments, and loyalty intentions, using both male and female subjects to examine gender differences. This type of study will be beneficial for men's wear online retailers to understand how to effectively present product information for male consumers.

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APPENDIX A: IRB HUMAN SUBJECT REVIEW (PHASE 1)

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Assurances
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

DATE: February 15, 2008

TO: Hye-Jeong Kim
c/o Mary Lynn Damhorst, 1068 LeBaron Hall

CC: Mary Lynn Damhorst
1068 LeBaron Hall

FROM: Jan Canny, IRB Administrator
Office of Research Assurances

TITLE: **Concerns with fit and size of the garment in apparel shopping**

IRB ID: 08-041 **Study Review Date:** 11 February 2008

The Institutional Review Board (IRB) Chair has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making <u>any</u> changes**, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use the documents with the IRB approval stamp** in your research.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

For IRB Use Only		
	Review Date: February 11, 2008	IRB ID: 08-041
	Approval Date: February 15, 2008	Length of Approval: n/a - exempt
	Approval Expiration Date: n/a	FULL Committee Review: no
	EXEMPT per 45 CFR 46.101(b): 2 Date: 2/11/08	Minimal Risk: yes
	EXPEDITED per 45 CFR 46.110(b) _____	More than Minimal Risk: no
	Category _____, Letter _____	Project Closed Date: _____

IRB

FEB - 1 2008

ISU NEW HUMAN SUBJECTS RESEARCH FORM

SECTION I: GENERAL INFORMATION

Principal Investigator (PI): Hye-Jeong Kim	Phone: 614-439-5142	Fax:
Degrees: Master	Correspondence Address: 3305 Roy Key Ave #10 Ames IA, 50010	
Department: Apparel, Educational Studies, & Hospitality management	Email Address: kim2005@iastate.edu	
Center/Institute: Iowa State University	College: College of Human Sciences	
PI Level: ☐ Faculty ☐ Staff ☐ Postdoctoral ☒ Graduate Student ☐ Undergraduate Student		

Title of Project: Concerns with fit and size of the garment in apparel shopping
Project Period (Include Start and End Date): [*mm/dd/yy*][*2/15/2008*] to [*mm/yy/dd*][*3/1/2011*]

FOR STUDENT PROJECTS	
Name of Major Professor/Supervising Faculty: Dr. Mary Lynn Damhorst	Signature of Major Professor/Supervising Faculty: [redacted]
Phone: 515-294-9919	Campus Address: [redacted]
Department: Apparel, Educational Studies, & Hospitality management	Email Address: mldmhrst@iastate.edu
Type of Project: (check all that apply) ☒ Research ☐ Thesis ☒ Dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project) ☐ Other. Please specify:	

KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that the each person will perform on the project.

NAME & DEGREE(S)	SPECIFIC DUTIES ON PROJECT	TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING
Hye-Jeong Kim, M.S.	Principal researcher	ISU Human subjects training, 9/25/2005
Mary Lynn Damhorst, PhD	Supervisor	ISU Human Subjects Training, 7/20/2000

Add New Row

FUNDING INFORMATION

Internally funded, please provide account number:

Externally funded, please provide funding source and account number:
Funding is pending please provide OSPA Record ID on GoldSheet:
Title on GoldSheet if Different Than Above:
Other: *e.g., funding will be applied for later.*

SCIENTIFIC REVIEW

Although the compliance committees are not intended to conduct peer review of research proposals, the federal regulations include language such as "consistent with sound research design," "rationale for involving animals or humans" and "scientifically valuable research," which requires that the committees consider in their review the general scientific relevance of a research study. Proposals that do not meet these basic tests are not justifiable and cannot be approved. If a compliance review committee(s) has concerns about the scientific merit of a project and the project was not competitively funded by peer review or was funded by corporate sponsors, the project may be referred to a scientific review committee. The scientific review committee will be ad hoc and will consist of your ISU peers and outside experts as needed. If this situation arises, the PI will be contacted and given the option of agreeing that a consultant may be contacted or withdrawing the proposal from consideration.

☒ Yes ☐ No Has or will this project receive peer review?

If the answer is "yes," please indicate who did or will conduct the review: The research design and instruments were reviewed by the Program of Study Committee

If a review was conducted, please indicate the outcome of the review: The outcome was positive; minor modifications were made to wording on instrument.

NOTE: RESPONSE CELLS WILL EXPAND AS YOU TYPE AND PROVIDE SUFFICIENT SPACE FOR YOUR RESPONSE.

COLLECTION OR RECEIPT OF SAMPLES

Will you be: (Please check all the apply.)

☐ Yes ☒ No Receiving samples from outside of ISU? See examples below.
☐ Yes ☒ No Sending samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the identity of the samples you will be sending or receiving outside of ISU:

Please note that some samples may require a USDA Animal Plant Health Inspection Service (APHIS) permit, a USPHS Centers for Disease Control and Prevention (CDC) Import Permit for Etiologic Agents, a Registration for Select Agents, High Consequence Livestock Pathogens and Toxins or Listed Plant Pathogens, or a Material Transfer Agreement (MTA) (http://www.ehs.iastate.edu/bs/shipping.htm).

SECTION II: APPLICATION FOR INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

☒ Yes ☐ No Does this project involve human research participants? If the answer "no" is checked, you will automatically moves to a question regarding the involvement of radiation producing devices in your project.

SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION (EH&S)

☐ Yes ☒ No Does this project involve laboratory chemicals, human cell lines or tissue culture (primary OR immortalized), or human blood components, body fluid or tissues? If the answer is "no" is checked you will automatically move to a question regarding the involvement of human research participants in your project.

ASSURANCE

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subject or welfare of animal subjects are protected. I will report any problems to the appropriate compliance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

CONFLICT OF INTEREST

A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook (http://www.provost.iastate.edu/faculty .) and have made all required disclosures.

☐ Yes ☒ No Do you or any member of your research team have an actual or potential conflict of interest?
☐ Yes ☐ No If yes, have the appropriate disclosure form(s) been completed?

SIGNATURES

[redacted] 1.31.08
Signature of Principal Investigator [redacted] Date

[redacted] 1-31-08
Signature of Department Chair Date

PLEASE NOTE: Any changes to an approved protocol must be submitted to the appropriate committee(s) before the changes may be implemented.

Please proceed to SECTION II.

SECTION II: IRB SECTION - STUDY SPECIFIC INFORMATION

STUDY OBJECTIVES

Briefly explain in **language understandable to a layperson** the specific aim(s) of the study.

Using a focus group interview, we will explore participants' concerns or risks related to fit and size of garments in online and in-store apparel shopping. The purpose of this study is to develop a scale of concern with fit and size of the garment in the shopping context.

BENEFIT

Explain in **language understandable to a layperson** how the information gained in this study will benefit participants or the advancement of knowledge, and/or serve the good of society.

This study will provide e-retailers with information concerning what type of concerns and risk consumers feel when shopping apparel online and how they can effectively display body-related information to decrease perceived risk related to fit and size of the garment. Consumers will benefit by the improvement of website body-related information when shopping. This study will contribute to literature by identifying the items to measure concern with fit and size of the garment.

PART A: PROJECT INVOLVEMENT

1) ☐ Yes ☒ No Is this project part of a Training, Center, Program Project Grant?
   Director Name: Overall IRB ID:
2) ☐ Yes ☒ No Is the purpose of this project to develop survey instruments?
3) ☐ Yes ☒ No Does this project involve an investigational new drug (IND)? Number:
4) ☐ Yes ☒ No Does this project involve an investigational device exemption (IDE)? Number:
5) ☐ Yes ☒ No Does this project involve existing data or records?
6) ☐ Yes ☒ No Does this project involve secondary analysis?
7) ☐ Yes ☒ No Does this project involve pathology or diagnostic specimens?
8) ☐ Yes ☒ No Does this project require approval from another institution? Please attach letters of approval.
9) ☐ Yes ☒ No Does this project involve DEXA/CT scans or X-rays?

PART B: MEDICAL HEALTH INFORMATION OR RECORDS

1) ☐ Yes ☒ No Does your project require the use of a health care provider's records concerning past, present, or future physical, dental, or mental health information about a subject? The Health Insurance Portability and Accountability Act established the conditions under which protected health information may be used or disclosed for research purposes. If your project will involve the use of any past or present clinical information about someone, or if you will add clinical information to someone's treatment record (electronic or paper) during the study you must complete and submit the Application for Use of Protected Health Information.

PART C: ANTICIPATED ENROLLMENT

Estimated number of subjects *contacted* to reach required enrollment: 100			
Number of subjects to be enrolled in the study Total: 30	Males: 15	Females: 15	

Check if any enrolled subjects are:	Check below if this project involves either:
☐ Minors (Under 18) Age Range of Minors: ☐ Pregnant Women/Fetuses ☐ Cognitively Impaired ☐ Prisoners	☐ Adults, non-students ☐ Minor ISU students ☒ ISU students 18 and older ☐ Other (explain)
List estimated percent of the anticipated enrollment that will be minorities *if known*:	
American Indian:	Alaskan Native:
Asian or Pacific Islander:	Black or African American:
Latino or Hispanic:	

PART D: SUBJECT SELECTION

Please use additional space as necessary to adequately answer each question.

11. Explain the procedures for selecting subjects including any inclusion/exclusion criteria (*i.e., Where will the names come from? Will a sample be purchased, will ads, fliers, word of mouth, email list, etc. be used?).*

The current study will use a convenience sample from classes in the Department of Apparel, Educational Studies, and Hospitality Management. The instructors of the classes will be contacted to announce the study. Students will sign up for specific times to meet.

12. Attach a copy of any recruitment telephone scripts or materials such as ad, fliers, e-mail messages, etc. Recruitment material must include a statement of the voluntary and confidential nature of the research. Do not include the amount of compensation, (e.g., compensation available).

Note: Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).

PART E: RESEARCH PLAN

Include sufficient detail for IRB review of this project independent of the grant, protocol, or other documents.

13. Describe the flow of events used in this research protocol. Include information from the first contact with the volunteers to the end of the study. Use a diagram or flow chart if appropriate. Also, include a description of the study procedures or tasks that participants will be exposed to or asked to complete. This information is intended to inform the committee of the procedures used in the study and their potential risk. Please do not respond with "see attached" or "not applicable."

per 2/11/08 email (EK)

The principal researcher will contact the instructors of classes in the textiles and clothing program. Participants will be alerted in classes regarding the opportunity to take part in the focus group interview, and announcement will be posted on the class WebCT. If a students is interested in participating in the focus group interview, she/he will sign up for a specific time to meet. The researchers will remind students by e-mail about data collection. At the beginning of the the focus group interview, a student will be asked to complete an informed consent document. The principal researcher will provide participants general instructions about the focus group interview. The conversation from the focus group interview will be audio-taped to be transcibed.
Also, a short background questionnaire to be self-administered before the focus group.

14. For studies involving pathology/diagnostic specimens, indicate whether specimens will be collected prospectively and/or already exist "on the shelf" at the time of submission of this review form. If prospective, describe specimen procurement procedures; indicate whether any additional medical information about the subject is being gathered, and whether specimens are linked at any time by code number to the subject's identity. If this question is not applicable, please type N/A in the response cell.

N/A

15. For studies involving deception, please justify the deception and indicate the debriefing procedure, including the timing and information to be presented to subjects. If this question is not applicable, please type N/A in the response cell.

N/A

PART F: CONSENT PROCESS

16. Describe the consent process for participants who are age 18 and older. *If the consent process does not include documented consent, a waiver of documentation of consent must be requested.*

The consent form will be provided to participants at the beginning of the focus group interview. The principal researcher will clearly indicate that if participants do not feel comfortable to participate in the survey, they can quit anytime. Also, if they are under 18, they will be asked not to participate in the focus group interview.

17. If your study involves minors, please explain how parental consent will be obtained prior to enrollment of the minor(s).

N/A

18. Please explain how assent will be obtained from minors (younger than 18 years of age), prior to their enrollment. Also, please explain if the assent process will be documented (*e.g., a simplified version of the consent form, combined with the parental informed consent document).* According to the federal regulations assent "…means a child's affirmative agreement to participate in research. Mere failure to object should not, absent affirmative agreement, be construed as assent."

Students 17 years or younger will not be allowed to participate in the study and will be affered an alternative activity for extra credit.

PART G: DATA ANALYSIS

19. Describe how the data will be analyzed (*e.g. statistical methodology, statistical evaluation, statistical measures used to evaluate results*)

The data collected from the focus group interview will be transcribed and analyzed using a content analysis technique. The content analysis will indicate new questions to add to the study.

20. If applicable, please indicate the anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

3/1/2009 Month/Day/Year

PART H: BENEFITS

21. Describe the benefit to the volunteer from participating in this study, *if any,* and the benefit to society that will be gained from the study. Please note that monetary compensation is not considered a benefit.

This study will provide retailers with information concerning what type of concerns and risk consumers feel about fit and size for apparel. Retailers will be given information about how they can effectively display body-related information to decrease perceived risk related to fit and size of the garment. Consumers will benefit by the improvement of body-related information when shopping.

PART I: RISKS

The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological, emotional, legal, social or financial risk.

22. ☐ Yes ☒ No Is the ***probability*** of the harm or discomfort anticipated in the proposed research greater than that encountered ordinarily in daily life or during the performance of routine physical or psychological examinations or tests?

23. ☐ Yes ☒ No Is the ***magnitude*** of the harm or discomfort greater than that encountered ordinarily in daily life, or during the performance of routine physical or psychological examinations or tests?

24. Describe any risks or discomforts to the subjects and how they will be minimized and precautions taken. Do ***not*** respond with N/A. If you believe that there will not be risk or discomfort to subjects you must explain why.

There are no foreseeable risks from participating in this study. The principal researcher will inform participants that if they do not feel comfortable to respond the questionnaire, they can quit anytime. Also, the participants will be informed that their responses will not be associated with their personal information.

25. If this study involves vulnerable populations, including minors, pregnant women, prisoners, educationally or economically disadvantaged, what additional protections will be provided to minimize risks?

The focus group interview will take an hour. Any pregnant women may voluntarily participate in the focus group interview. The principal researchers will clearly explain the process of the focus group interview and inform that they can discontinue anytime if they will feel any risks or discomforts.

PART J: COMPENSATION

26. ☒ Yes ☐ No Will subjects receive compensation for their participation? If yes, please explain.

Do not make the payment an inducement, only a compensation for expenses and inconvenience. If a person is to receive money or another token of appreciation for their participation, explain when it will be given and any conditions of full or partial payment. (E.g., volunteers will receive $5.00 for each of the five visits in the study or a total of $25.00 if he/she completes the study. If a participant withdraws from participation, they will receive $5.00 for each of the visits completed.) It is considered undue influence to make completion of the study the basis for compensation.

Participants will receive 10-point extra credits for class for compenstion. Only 30 students can participate. The instructor will offer an alternative acitivty for extra credit to those students who do not fit in the focus groups.

PART K: CONFIDENTIALITY

27. Describe below the methods that will be used to ensure the confidentiality of data obtained. For example,, who has access to the data, where the data will be stored, security measures for web-based surveys and computer storage, how long data (specimens) will be retained, etc.)

Information obtained will be kept strictly confidential. The conversation from the focus group interview will be audio-typed to be transcribed and will not be associated with participants' personal information. The audio-tapes will be retained for one year and destroyed after completing the research.

PART L: REGISTRY PROJECTS

To be considered a registry: (1) the individuals must have a common condition or demonstrate common responses to questions; (2) the individuals in the registry might be contacted in the future; and (3) the names/data of the individuals in the registry might be used by investigators other than the one maintaining the registry.

☐ Yes ☒ No Does this project establish a registry?

If "yes," please provide the registry name below.

Checklist for Attachments

The following are attached (please check ones that are applicable):

☒ A copy of the informed consent document **OR** ☐ Letter of introduction to subjects containing the elements of consent
☐ A copy of the assent form if minors will be enrolled
☐ Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility
☒ Data-gathering instruments (including surveys)
☒ Recruitment fliers, phone scripts, or any other documents or materials the subjects will see

Two sets of materials should be submitted for each project – the original signed copy of the application form and one copy and two sets of accompanying materials. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

FOR IRB USE ONLY:

Initial action by the Institutional Review Board (IRB):

☑ Project approved. Date: Exempt
☐ Pending further review. Date: _____
☐ Project not approved. Date: _____

Follow-up action by the IRB:

_____ _____
IRB Approval Signature Date

SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized), or human blood components, body fluids or tissues? If the answer is "no", please proceed to SECTION III: APPLICATION FOR IRB APPROVAL. If the answer is "yes," please proceed to Part A: Human Cell Lines.

PART A: HUMAN CELL LINES

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized cell lines/strains) that have been documented to be free of bloodborne pathogens? If the answer is "yes," please attach copies of the documentation. If the answer is "no," please answer question 1 below.

1) Please list the specific cell lines/strains to be used, their source and description of use.

CELL LINE	SOURCE	DESCRIPTION OF USE

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Please list the specific precautions to be followed for this project below (e.g., retractable needles used for blood draws):

Anyone working with human cell lines/strains that have not been documented to be free of bloodborne pathogens is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (http://www.ehs.iastate.edu/bs/bbp.htm).

PART B: HUMAN BLOOD COMPONENTS, BODY FLUIDS OR TISSUES

☐ Yes ☒ No Does this project involve human blood components, body fluids or tissues? If "yes", please answer all of the questions in the "Human Blood Components, Body Fluids or Tissues" section.

1) Please list the specific human substances used, their source, amount and description of use.

SUBSTANCE	SOURCE	AMOUNT	DESCRIPTION OF USE
E.g., Blood	*Normal healthy volunteers*	*2 ml*	*Approximate quantity, assays to be done.*

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Specific sections to be followed for this project are:

Anyone working with human blood components, body fluids or tissues is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (http://www.ehs.iastate.edu/bs/bbp.htm).

FOR ENVIRONMENTAL HEALTH AND SAFETY USE ONLY

Signature of Biological Safety Officer

Date

APPENDIX B: ANNOUNCEMENT/EMAIL MESSAGE (PHASE1)

CLASS ANNOUNCEMENT

Research Participants Needed

Apparel Fit Concerns
Focus Group Interview

A research study on concerns with fit and size of garments
in apparel shopping

Eligibility Requirements:

Older than 18 years old

- If you are interested in the focus group interview, sign up on the sheets provided in class.
- If you are below the age of 18 or cannot get into the limited spaces available, an alternative extra credit activity is available for TC165.

Your participation in this study is completely voluntary. Your responses will be kept in strict confidence. Results will be published in summary form only. You can discontinue if you don't feel comfortable. The focus group interview will last ONE hour.

EMAIL MESSAGE

Title: Focus group interview: study on Concern with fit of garment

Dear interviewees:

This is a reminder email concerning the focus group interview that you have signed up for the specific time below.

The focus group interview will be held:

When: March (date), 2008, 1:00-2:00 pm
Where: 1084 LeBaron Hall

As announced in class, the purpose of the focus group interview is to examine the concerns with fit and size in apparel shopping. For the participation, you will be given 10 point class credits. However, if you are below the age of 18 or do not want to participate in the focus group interview, an alternative extra credit activity is available for TC165.

Your participation in this study is completely voluntary. Your personal information will not be associated with your response. Results will be published in summary form only. If you do not feel comfortable completing the focus group interview, you are free to discontinue at any time. There is no penalty or loss to you for not completing the focus group interview.

If you have any questions about this study, please feel free to contact Hyejeong Kim at: kim2005@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Research Assurances, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011.

We thank you for your willingness to participate in this study.

Hyejeong Kim: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 31 Mackay Hall Ames, IA 50011
Mary Lynn Damhorst: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 1068 LeBaron Hall Ames, IA 50011

APPENDIX C: CONSENT FORM (PHASE 1)

INFORMED CONSENT DOCUMENT

Title of the Study: Concerns with fit and size of the garment in online apparel shopping

INVESTIGATORS

Hyejeong Kim: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 31 Mackay Hall Ames, IA 50011
Mary Lynn Damhorst: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 1068 LeBaron Hall Ames, IA 50011

INTRODUCTION

This research explores consumers' concerns about fit and size of garment in online and in-store apparel shopping. The results will potentially provide valuable information to retailers about the types of concerns or risks with fit and size of the garment in the online shopping context. In addition, this study will provide retailers information regarding how consumers of various body types have different concerns about fit and size of the garment.

DESCRIPTION OF PROCEDURES

You are invited to participate in a focus group interview. If you agree to participate in this study, your participation will last for approximately an hour.

RISKS

There are no foreseeable risks from participating in this study.

CONFIDENTIALITY

The conversation that you have during the focus group interview is completely confidential. Any information received will not be associated with you in any written reports; results will be published in summary form only. You can discontinue participation in the focus group conversation at any time, if you do not feel comfortable. Your personal information will not be associated with your response.

COSTS AND COMPENSATION

For the participation, you will be given 10 point class credits in TC165 for an incentive.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled.

QUESTIONS OR PROBLEMS

If you have any questions about this study or items in the questionnaire, please feel free to contact Hyejeong Kim at: kim2005@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Research Assurances, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011. We do appreciate your time and willingness to participate in this research.

SUBJECT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study and that the study has been explained to you. You will receive a copy of the signed and dated written informed consent prior to your participation in the study.

Subject's Name (printed) _____

_____ _____

(Subject's Signature) (Date)

APPENDIX D: INTERVIEW QUESTIONS (PHASE 1)

APPAREL FIT CONCERNS FOCUS GROUP INTERVIEW

Focus Group Questions

1. Please think about your apparel shopping experiences in retail stores. What types of problems related to fit and size of garments have you experienced?

2. Please imagine a situation that you purchase apparel online. What types of concerns or risks with fit and size of garments have you felt when shopping for apparel online? If you haven't purchased apparel online, what types of concerns or risks with fit and size of garments do you think you would you feel?

3. Do you think that your experiences about fit and size of garments in retail stores affect your concerns with fit and size in online apparel shopping?

4. How does your concern with fit and size of garments affect your purchase decision in online apparel shopping?

FOCUS GROUP INTERVIEW BACKGROUND INFORMATION

Please answer the following questions.

1. Are you male? _____ female? _____

2. What is your age? _____

3. What is your school major? _____

4. What year are you in?

   Freshman _____
   Sophomore _____
   Junior _____
   Senior _____

5. What is your ethnic background? (Check all that apply)

   African American _____
   Caucasian American _____
   Hispanic/Hispanic American _____
   Native American _____
   Asian American _____
   Other _____

3. Have you ever purchased apparel online? Yes _____ No _____

4. If yes, how many apparel items have you purchased online during last six months?

   _____

5. Please list the types of apparel items you have purchased online?

   _____

   _____

APPENDIX E: EXAMPLE QUESTIONS/STATEMENSTS (PHASE 1)

Table E.1. Results of Focus Group Interview

	Example item	Example statement
Concerns about unavailability of size	I may not find my size in the store.	"Sometimes, you don't get the size you want."
		"I think a lot of them start at 30, 32, 34, but 32 or 34 and are usually out of stock."
		"Stores always have double zero, zero, and then 10, 12, 14. I think I never have 2, 4, or 6 because those are the most popular sizes."
		"I usually buy pants online I can't typically find my size because I am too tall and pretty thick so."
		"… because at the Buckle they are too small, so I can't usually find my size."
	I may not find the exact size I am looking for in the store.	"I am short, so I shop in a petite section, sometimes I don't find what exactly I am looking for. Sometimes I like something in a regular size and I can't find that in petite size, so that discourages me from buying."
	The store may not carry my size.	"It's hard to find bigger sizes. Most stores don't carry larger sizes."
	I may have to make an additional effort to find the right size and fit of a garment in the store.	"There's XXI, something, and there's another store just like Forever 21. Those ones are, you have to be mentally prepared [to find a right size]."
		"I am very short as well, so I kind of take more time to figure out what fits me right. Things like that."
		"It's still too small. You have to keep trying on more things."
		"You have to keep trying on more things"
	I may have a hard time to find a right size and fit in the store.	"I have a hard time finding 30 or 32 because the average waist size is probably 36 or 38."
Concerns with body image and overall appearance	My body size is different from the ideal body size.	"My body shape or size is different from the Caucasian shape."
	My body may not fit the garments selling in the store.	"I was almost like one size away from not being able to fit into jeans that the store [Abercrombie and Fitch]."
		"For me, it's my butt. My problem is a lack of that area…so that's I look at a lot and the length, that's important to me, too."
	My body may not fit the garments selling in the store because their apparel items reflect the ideal body.	"I agree there's like a lot of vanity sizing in certain stores, like Abercrombie, Hollister are so much smaller, a small is what I usually wear everywhere else so, small, I have to get medium there. I think that they do that because everyone wants to look thinner, but by doing that, it just makes people feel bigger, so I think it just drives in the social, like ideal of being smaller to fit their clothes."

Table E.1. (continued)

		"I used to work at Wet Seal and we had to wear their denim and I hated it because those are the kind of jeans I used to feel more like for skinny, skinny legs, skinny figures and that's not me."
	The garment may not reflect my body proportion.	"Once I buy a pair of pants, they fit in the waist, the thighs are always too tight. If I get them to fit in my thighs, then the waist is too big."
		"My legs are really long and my waist is a little bit littler, so I have a really hard time to find pants that fit because they are always either too short like this.
		"Because I know that my body is not as proportional like those models."
		"Definitely, that's the problem I have with a lot of brands. I think, especially, European brands that are made more for slender fits. I have big thighs, I can't wear them, and the inseam is too small."
	The fit of the garment may be different from my body proportion.	"A polo shirt like this, I need a larger fit, large, extra large, but then there is way too much space and the side areas… it fits my arms and my shoulders as well, but there's way too much space, if I get a smaller size, then not enough room for my shoulders."
		"This is double XL and I usually wear large or an extra long and it is actually long enough but it is too big on the sides."
		"Sometimes, the fit is extremely tight in the legs and loose the butt."
		"I have bigger thighs and I always have to buy a looser fit jeans. I can't wear like straight, fitted jeans. I don't know like for waist and side waist, I have to go up a bigger size because fitting my thighs then it's too big."
	The length of the cloth may not fit me.	"I am really shorter than…, so most of the pants are longer."
		"Sometimes pants are too short because my legs are long."
		"But jeans, you have to worry about the length"
	I may have to get alterations of the garment.	"I have to get a longer length and I have to go and get them tailored."
		"I always buy pants way too long and have to get them hemmed."
		"I had three pairs of pants hemmed up because you want the dress pants to look nice."
		"Every time I buy a suit, I have to get something altered. The suit has to fit perfectly so."

Table E.1. (continued)

		"Because I am short, I take it for granted that all my jeans have to be altered when I buy them."
		"The pants I am getting are always way too long and I am too lazy to get them altered."
	I may have to buy different sizes for the top and the bottom.	"Sometimes if you buy a suit outfit, different sizes for the top and the bottom."
	I may look bigger (or wider) in the garment.	"…actually make me (look) wider."
		"You kind of try to avoid styles emphasizing the weaker parts of your body."
		"so, everyone looks at the stuff that, like hides that."
		"You don't wanna be muffin topping over."
	I may feel fat when I try on the garment.	"Like going into Hollister, I feel like super fat, like all the clothes like just tiny… It's just annoying because just walking in and I don't want to try on these."
	The garment may not look good on me.	"If it looks good on me."
Concerns with product performance	The size may not fit properly.	"Sometimes, you don't really get the size you want, you know, The size you have doesn't fit properly."
		" you want them to fit properly."
	The garment may not fit right.	"As far as the problem, it's more time consuming, just something doesn't fit right, then try one size up, it's still too small, you have to keep trying on more things."
		"It didn't fit right."
		"I am afraid to find some if it doesn't fit."
		The size of the garment may not fit me.
		"You don't know exactly if your purchasing is gonna fit you right."
	The fit of the garment may not be precise.	"Is the fit pretty precise?"
	The garment may not fit perfectly.	"I mean the biggest concern in online shopping is (if) it is really fit you perfectly…"
		"…how exactly it fits"
	The garment may not fit well.	"They fit pretty well."
		"I just worry about the size and if it fits well."
	The garments may be too small on me.	"But some stuffs are really tiny."
		"Abercrombie and Hollister, they are very small. They have really small sleeves and really shorts."
	The garment may be too tight on me.	"…really tight."
		"…stuff in there is so tight."

Table E.1. (continued)

	The garment may be too fitting to me.	"There's an example showing stores don't fit the same, do you shop at Forever 21? I wore mediums or larges because stuff in there is so fitting.
	The way the garment fabric drapes on me may not work for my body shape.	"…some materials don't work certain types of body stuff like that. Like shirts, mixed materials can be different from cotton or whatever."
		"It clings, you don't want it to cling…"
		"A material affects how it drapes on you."
Concerns with uncertainty about the sizing system of apparel stores (brands)	The sizing system of this store may not be accurate.	"I agree there're like a lot of vanity sizing in certain stores"
	The sizes of the garments in the store may not be consistent.	"One time I bought three polos, They were all same, but different colors, all the same size, but one was smaller than the others."
		"…I never tried a large on, but we'll see. It was like too big, but you know it fit me. And I did another one. I bought a zip up and it was a medium and it fit me like the same way."
		"Although the sizes are pretty similar from brand to brand, still there are some differences."
		"When I worked at Abercrombie, each jeans fit different, so you can buy one and it might be little smaller and try another one, it's a good fit."
		"There can be two different jeans and the length can be longer than the other."
	I don't trust the sizing system of the store.	"Sometimes I don't trust that though, when they have like 2, 4, 6 for girls, I don't trust the conversions to know exactly what size I am."
	Depending on brands, the garment fit may be different.	"I think that depends on brands, like which brand jeans you get. They may fit differently. It's not a standard size or standard marker."
		"They have different sizes in different stores, so it's kind of difficult to keep consistently sizing throughout different brands."
		"Victoria's Secret offers so many different brands within their stores…your size whatever, it's gonna vary from brand to brand. So I think it's hard when there are different brands involved in a bigger company."
		"It's really hard to find jeans because some stores have so many different ways to size jeans like they have either the waist size or just like a plain size. Some places do 26, 27, or 28 and some places do 34, 36, something like that. It's kind of hard to figure out."
		"Their jeans and shorts are all different sizes too."

Table E.1. (continued)

		"…buy jeans and stuff from brands like Hollister and Abercrombie, they fit really differently."
	I may wear a different size in the store.	"…basically every store has different sizes, like you wear different sizes."
	My size may change when I go to a different store.	"…it changes when you go to different places…"
	I may have to wear a bigger size in the store than other stores.	"…cause I used to work at Hollister before I came to school and I was size nine there and I go over to Abercrombie or something, cause I worked over there too, I will be down two sizes."
		"I went to Express to buy a pair of jeans. I was like, the size was smaller than I was in American Eagle."
		"I go a size down in shorts at American Eagle, but then Gap and Banana Republic go up in size."
		"I will be 34 in one and 30 in the next."
		"… stores like American Eagle and Abercrombie, not Abercrombie as much, smaller American Eagle like and Abercrombie and Hollister, it's like more medium or large because they are small."
		"like Abercrombie, Hollister are so much smaller, a small is what I usually wear everywhere else so, small, I have to get medium there.
		"…Even though I wear 32 waist, sometimes, 32 is like a tight 32, so you have to go 33 something like that."
		"At Target, I probably wear a smaller size unlike Gap."
	The cut of the garment may be different in the store compared to other stores.	"…the cut will be different from different clothes depending on brands"
		"Abercrombie and Hollister, they are very small, they have really small sleeves and really short."
	I am not sure what size I should wear when shopping in the website.	"The reason I don't shop online is that I am not exactly sure about my size."
		"I was like wear I do regular or long? Because my legs are in the middle of regular and long."
	The cut of the garment may be different in the store compared to other stores.	"…the cut will be different from different clothes depending on brands"

Table E.1. (continued)

Physical concerns	I may feel uncomfortable in the garment.	"It just feels comfortable."
	The garment may look good on my body, but may feel uncomfortable.	"It's just really uncomfortable."
	The fit of the garment may cause discomfort.	
Concerns with projecting a correct impression	I may not project the self image that I want to show other people when wearing the garment.	"I am buying a shirt and the sleeves are really wide, then my arms are gonna feel really small. I can't be going around campus with a shirt make my arms look small. I mean, I have this image of myself that I have muscles, but I mean, having that shirt that I actually like is tighter, I probably can convince myself."
	The clothes may not give other people a positive impression about me.	
	The garment may not give other people the right impression about me.	
		"You don't wanna buy something that looks like a little girl or make you a flirter… you want to look more sophisticated and look like your image."
	The garment may be too revealing.	"I don't like to show my cleavage so usually I think about, v-neck, it's gonna to stop here or come down."
		"Some people are more conservative, so, you have, you know, too revealing, not long enough."
		"they are cut super low"
	I feel confident about how the garment fits me when shopping in the store.	"Now you feel more confident because you know that whatever you buy it will fit your body"
	The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	"… tops are too tight around my mid section…"
	I may look weird in the garment.	"You kind of look like an idiot in those leg warmers."
		"It looks stupid."
		"They look really weird on me."
		"It looked hideous."
		"It looks stupid."
Concerns with inability of trying on in online shopping	The garment fit may be different when I actually tried it.	"…so I never bought shirts online. Even in a same brand, fits are so different."
		"They might look different. Clothes may fit differently on different people."
		"… it's gonna fit me differently."
	The garment on the website may look different when I try it on at home.	"Even though it looks good on the model, it's gonna look different on me."

Table E.1. (continued)

	The garment may not look as good as it shows on the website when I tried it on at home.	"… it looks as good as it shows on the screen."
		"Sometimes like even their advertising (Victoria Secret) is deceiving."
		If you see, like that looks great, then you put it on, wow, scratch that."
	The garment may look good on the website, but not on me.	
	The fit of the garment may be different from what I see on the website.	Is it gonna look the same as online in the photographs?"
	Shopping in the website, I may have to guess if the garment fits my body.	"…but in online, you are just kind of estimating, you are just guessing. I am gonna guess if this is gonna fit me."
		"A major risk is, you just kind of have to guess whether or not it's gonna fit."
		"Just too much for guess."
	Shopping in the website, I may have a hard time picturing myself wearing the garment.	"I picture myself wearing it."
		"We kind of picture ourselves more looking like that. We hope that it looks similar on us."
		"A lot of times, even if it is our size sometimes how we picture ourselves in our heads, or daydream about ourselves, or see ourselves in our heads, we kind of, don't focus on the flaws, so you know if you picture yourself wearing that, you picture, that kind of like, looks on the model. You don't picture your muffin top or whatever."
	I may have a hard time imagining the fit of the garment shopping in the website.	"It's almost you have to try to attempt to like imagine yourself trying to wear it but I just have a really hard time with that."
	My guess about the garment fit may not be correct when shopping in the website.	"I guess, it (online shopping) is inconvenient if your guess isn't correct.
	The garment may fit differently on me than it fits on the model.	"Well, models appeal to people most of the times because they are good-looking and with most of the products, someone who is overweight can't fit into it."
		Sometimes I have to realize that the garment is made for the model. It's not gonna fit like that. They have longer arms and legs.
		"When you go to retail stores and see clothes on the mannequins, they look really nice… When you try on the shirt and that's not how it fits on a person….They differ so much so clothing differs."

Table E.1. (continued)

		"It's like something good on the rack. It looks good on the rack and mannequin, but not on you."
		"It looked awesome on the model and was really, but when I got it, it was hideous"
		"I know that how it fits the model on the website is not how it's gonna fit me."
	The garment fit may be different from person to person.	"They're advertising super skinny models, you know, they wear something that you know, like an everyday wear and it fits them. You know, how the garment actually fits the body, but I mean it doesn't go to an extent to all shapes and sizes.
	I cannot depend on the garment fit shown on the website.	"I am a plus size. Okay it doesn't really relate to me."
	I may receive an apparel item that doesn't fit me shopping in the website.	"I am afraid to find something (in online store) if it doesn't fit when I get it."
		"Even though I know my size, a lot of stores, I don't know, I would so hesitate to buy online and like they could mess up and send me a wrong pair of jeans."
		"When I got the merchandise, it can just be a wrong thing, wrong size or wrong product."
	I would not buy clothing without trying it on.	"I don't normally buy jeans online because I want to try them on"
		"I know I would want to try on probably before I buy it."
		"I should try on everything"

APPENDIX F: IRB HUMAN SUBJECT REVIEW (PHASE 2)

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Assurances
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

DATE: May 29, 2008

TO: Hye-Jeong Kim
31 Mackay

CC: Dr. Mary Lynn Damhorst
1068 LeBaron Hall

FROM: Jan Canny, IRB Administrator
Office of Research Assurances

TITLE: **Concerns with fit and size of the garment in apparel shopping**

IRB ID: 08-041 **Study Review Date:** May 29, 2008

The Institutional Review Board (IRB) Chair has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making <u>any</u> changes**, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use the documents with the IRB approval stamp** in your research.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

For IRB Use Only	Modification Approval Date May 29, 2008 Continuing Review Approval Date Approval Expiration Date: n/a - exempt	IRB MAY 0 9 2008

ORIGINAL

ISU HUMAN SUBJECTS CONTINUING REVIEW AND/OR MODIFICATION FORM

TYPE OF SUBMISSION: ☐ Continuing Review ☒ Modification ☐ Continuing Review and Modification

Principal Investigator: Hye-Jeong Kim	Phone: 614-439-5142
Degree: Master	Correspondence Address: 3305 Roy Key Ave #10 Ames IA, 50010
Department: Apparel, Educational Studies, & Hospitality management	E-mail Address: kim2005@iastate.edu
Project Title: Concerns with fit and size of the garment in apparel shopping	
IRB ID: 08-041	Date of Last Continuing Review:
IF STUDENT PROJECT	
Name of Major Professor: Dr. Mary Lynn Damhorst	Phone: 515-294-9919
Department: Apparel, Educational Studies, & Hospitality management	Campus Address: 1068 LeBaron Hall
	E-mail Address: mldmhrst@iastate.edu

FUNDING INFORMATION:

☐ External Grant/Contract ☒ Internal Support (no specific funding source) or Internal Grant (indicate name below)	
Name of Funding Source:	OSPA Record ID on Gold Sheet:
☐ Part of Training, Center, Program Project Grant – Director:	Overall IRB ID No:

CONFLICT OF INTEREST

The proposed project or relationship with the sponsor require the disclosure of significant financial interests that present an actual or potential conflict of interest for investigators involved with this project. By signing this form, all investigators certify that they have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook and made all disclosures required by it. (http://www.provost.iastate.edu/faculty .)

Do you or any member of your research team have a conflict of interest? ☐ Yes ☒ No
If yes, has the appropriate disclosure form been completed? ☐ Yes ☐ No

ASSURANCE

I certify that the information provided in this application is complete and accurate and consistent with proposal(s) submitted to external funding agencies. I agree to provide proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the IRB for review. I agree that modifications to the originally approved project will not take place without prior review and approval by the Institutional Review Board, and that all activities will be performed in accordance with state and federal regulations and the Iowa State University Federal Wide Assurance.

[redacted] 5.9.08
Signature of Principal Investigator Date

Student Projects: Faculty signature indicates that this application has been reviewed and is recommended for IRB review.

[redacted] 5/9/08 [redacted] May 29, 2008
Signature of Supervising Faculty Date IRB Approval Signature Date

For IRB Use Only	
	EXPEDITED per 45 CFR 46.110(b) _____, Category _____, Letter _____
	STUDY REMAINS EXEMPT per 45 CFR 46.101(b) 2
	WAIVER of SIGNED CONSENT per 45 CFR 46.117(c) _____
	WAIVER of ELEMENTS of Consent per 45 CFR 46.116 _____
	VULNERABLE POPULATION per 45 CFR 46._____

Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).

SECTION I: KEY PERSONNEL

☐ Yes ☒ No Have there been any personnel/staff changes since the last IRB approval was granted?
If yes, complete the following sections (Additions/Deletions) as appropriate.

Add	Delete	Last Name	First Name

Add New Row

List all current members and relevant experiences of the project personnel. This information is intended to inform the committee of the training and background of the investigators and key personnel.

NAME & DEGREE(S)	POSITION AT ISU & ROLE ON PROJECT	TRAINING & DATE OF TRAINING
Hye-Jeong Kim, M.S.	Principal researcher	ISU Human subjects training, 9/25/2005
Mary Lynn Damhorst, PhD	Supervisor	ISU Human Subjects Training, 7/20/2000

Add New Row

SECTION II: CONTINUING REVIEW

In addition to completing Section I: Key Personnel, please complete Section II if this is an application for Continuing Review. If this is an application for continuing review and you will be modifying your project in the future, please complete all sections of the form. **If this application is only to request approval for a modification or change to your study, please complete Section I: Key Personnel and Section III: Proposed Modifications or Changes.**

Part A: Enrollment Status

1. ☐ Yes ☐ No Is the research **permanently** closed to the enrollment of new participants?
2. ☐ Yes ☐ No Have **all** participants completed all research-related interventions?
3. ☐ Yes ☐ No Does research remain active only for long-term follow-up of participants?
4. ☐ Yes ☐ No Are the remaining research activities limited to data analysis? OR
5. ☐ Yes ☐ No Participant enrollment has not begun and no additional risks have been identified.

Number of Participants Approved by IRB:	Number of Participants Consented to Date:
Number of Participants Consented Since Last Continuing Review: Total: Males: Females:	
Number of Participants Screened:	Number of Participants Lost to Follow-up:
Check if any enrolled participants are: ☐ Minors (under 18). Age Range of Minors: _ ☐ Pregnant Women/Fetuses ☐ Cognitively Impaired ☐ Prisoners	Check below if this project involves either: ☐ Existing Data/Records ☐ Secondary Analysis ☐ Pathology/Diagnostic Specimens
List Estimated Percent of the Total Enrolled That Are Minorities Below	
American Indians:	Alaskan Native:
Asian or Pacific Islander:	African American:

Black (Not of Hispanic Origin):	Hispanic:

1. ☐ Yes ☐ No Have any participants withdrawn or have you asked any participants to withdraw from the study?

List number for each and reason for withdrawal:

Part B: Protocol Summary – Please use the amount of space needed to adequately address the questions.

1. Please provide a concise summary of the purpose and main procedures of the study.

2. Please provide a summary of how the study is progressing (e.g., progress to date in terms of the overall study plan, success or problems encountered, reasons enrollment has not begun, etc.)

3. Is there any new information (positive or negative) from this study (e.g., interim analysis) or elsewhere (e.g., current literature) that might affect someone's willingness to enroll or continue in the study? It is especially important for the investigator to notify the IRB of literature or information that's relevant to the risks to participants in the study.

4. Please provide a summary of amendments or modifications since last IRB review.

Part C: Adverse Events and Unforeseen Problems

1. ☐ Yes ☐ No Have there been any adverse events or unanticipated problems involving risks to participants or other people?

   If yes, please give them numbers and describe.

   If yes, was it reported to the IRB? Date reported
   If report was not submitted, please explain why.

2. ☐ Yes ☐ No Have there been any participant complaints?

   If yes, please describe.

   Attach any reports submitted to NIH or a Data and Safety Monitoring Board. ☐ Attached ☐ N/A

Part D: Informed Consent

1. ☐ Yes ☐ No If a signed Informed Consent Form was required, was Informed Consent obtained from all participants?

   If no, please explain.

2. ☐ Yes ☐ No Are all signed Informed Consent Forms on file with the PI?

   If no, please explain.

3.

☐ Attached ☐ N/A	Submit copy of the currently approved Informed Consent Form and an original unstamped copy (if stamped). If changes have been made, please submit the original, a copy with the changes highlighted, and a copy to be stamped with IRB approval
☐ Attached ☐ N/A	Submit currently approved informational letter
☐ Attached ☐ N/A	Submit an unstamped copy of all survey instruments, interview questions, recruitment materials, instructions, and all other material participants will see or hear during their participation so that a current IRB approval stamp can be added. If changes have been made, please submit the original, a copy with the changes highlighted, and a copy to be stamped with IRB approval.

SECTION III: PROPOSED MODIFICATIONS OR CHANGES

If this application is to request approval for modification or changes to your project, please complete Section I: Key Personnel and Section III.

The submission of a modification form is required whenever changes are made to an approved project. This includes but is not limited to a title change, changes in investigators, resubmission of a grant proposal involving changes to the original proposal, changes in the funding source, changes of an instrument, advertisements, reports from a data safety and monitoring board, addition of a test instrument, etc. **NOTE: All changes must be submitted and approved by the IRB prior to their implementation, unless the change is necessary to protect the safety of participants.**

1. Does your project require approval from another institution, please attach letters of approval?

☐ Yes ☒ No

2. The following modification(s) are being made (check all that apply):

☐ Change in protocol.
☒ Change in type or total number of participants. New anticipated total: 6,000
☒ Change in informed consent document.
☐ Change in co-investigator(s). New co-PI name:

Signature of new Co-PI: _____

☐ Change in funding source/sponsor. Please attach copy of grant proposal sent to new funding agency.
☒ Other (e.g., change in project title, adding new materials, adding advertisement, etc.)

NOTE: If the change involves a new Principal Investigator, a new Human Subjects Review form must be submitted.

3. Describe the modification(s) indicated above in sufficient detail for evaluation independent of any other documents. When submitting revised documents please submit one clean copy of the new document and a copy with the changes highlighted.

As indicated in the original IRB form, we conducted focus group interviews using a convenience sample drawn from undergraduate students in Apparel, Educational Studies, and Hospitality Management. The purpose of the project was to develop a scale to measure concerns with fit and size of the garment in online and offline shopping contexts. Therefore, as a next step, we want to statistically test the questions created from the focus group interviews using a random sample.
A web-survey method will be used to collect data, using a random sample drawn from ISU Students who are enrolled in Summer 2008. Because 62 questionss were developed based on the focus group interviews, I included the list of questions and email content consisting of the informed consent form.

A list of 6000 subjects' email addresses will be provided by the office of the registrar. The principal researcher will send emails with description of study, and a website link. If students decide to participate in this study, they will access the general instruction and questionnaires by clicking the website link. Participants will read the consent form and continue to the survey. The principal researcher will inform participants that their participation is competely voluntary and that they can quit anytime if they do not want to continue.

The participants will be also informed that their responses will not be assocaited with their personal information such as email address or name. Because the survey will be conducted through the Internet, the consent form will be provided to participants in the email invitation before the website link. The principal researcher will clearly indicate that if participants do not feel comfortable to participate in the survey, they can quit anytime. Also, if they are under 18, they will be asked not to participate in the survey. If someone yourger than 18 participates, as indicated in the demographics, his or her data

will be eliminated.
Data will be analyzed using LISREL and SPSS. Primarily quantitative data analysis methods will be used. Descriptive statistics will be used. Overall trends in students' scores, demographic information, online/online apparel shopping experiences will be analyzed using SPSS. Structural Equation Modeling (SEM) using LISREL will be performed to test the underlying dimensions of the questions.

There are no foreseeable risks from participating in this study. The principal researcher will inform participants that if they do not feel comfortable to respond, they can omit items or quit anytime. Also, the participants will be informed that their responses will not be associated with their personal information (e.g., emails and names).

This study will use a student sample. In using a random sample, because this study will be conducted through the Internet, the principal researcher will not have information regarding participants' conditions (e.g., pregnant women). However, the principal researcher will inform that the participants can discontinue anytime if they will feel any risks or discomforts.

Each participant will be asked to type their email address and name at the end of the survey if they want to have a chance to win a $20 gift certificate. However, their name and email addresses will be automatically saved in a different file separated from their responses.
Ten participants will be randomly selected, using an EXCEL random number generation program, and be given $20.00 Target gift certificates as a compensation.

Information obtained will be kept strictly confidential. Participants' responses will be collected and saved separately and will not be associated with participants' email addresses and names. After selecting participants who will receive the incentives, the email addresses and names will be destroyed. The data file will be retained for five years and destroyed after completing the research.

APPENDIX G: CONSENT FORM
(PHASE 2: EXLORATORY FACTOR ANALYSIS)

INFORMED CONSENT DOCUMENT

Title of the Study: Concerns with fit and size of garments in apparel shopping

INVESTIGATORS

Hyejeong Kim: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 31 Mackay Hall Ames, IA 50011

Mary Lynn Damhorst: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 1068 LeBaron Hall Ames, IA 50011

This research explores consumers' concerns about fit and size of garments in offline and online apparel shopping. The results will potentially provide valuable information to retailers about the types of concerns or risks with fit and size of garments in offline as well as online apparel shopping contexts.

You are invited to participate in a survey. All surveys must be completed between April 14 and April 22, 2008. If you agree to participate in this study, your participation will last for approximately 15-20 minutes.

There are no foreseeable risks from participating in this study. All your answers are completely anonymous and confidential. Any information received will not be associated with you in any written reports; results will be published in summary form only. If you do not feel comfortable completing the questionnaire, you are free to discontinue at any time. Your personal information will not be associated with your response. For the participation, you will be given class credits for an incentive.

Your participation in this study is completely voluntary. If you decide to not participate in the study, it will not result in any penalty or loss of benefits to which you are otherwise entitled. If you have any questions about this study or items in the questionnaire, please feel free to contact Hyejeong Kim at: kim2005@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, Office of Research Assurances, (515) 294-3115, 1138 Pearson Hall, Ames, IA 50011. We do appreciate your time and willingness to participate in this research.

SUBJECT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this study and that the study has been explained to you. Please submit this form to the instructor along with your survey to receive class credits.

Subject's Name (printed) _____

Class you intend to receive extra credits _____

_____ _____

(Subject's Signature) (Date)

APPENDIX H: QUESTIONNAIRE
(PHASE 2: EXPLORATORY FACTOR ANALYSIS)

QUESTIONNAIRE: OFFLINE AND ONLINE SHOPPING CONTEXT

In this survey, you will answer same questions twice in two different apparel shopping contexts: (1) offline and (2) online shopping contexts.

Scenario 1: Offline apparel shopping context

Imagine that you visit an apparel retail store to buy your new spring clothes. Please read the following statements and select ONE answer that best reflects your concern when shopping at a retail (offline) store.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
SD	D	N	A	SA	NA

*Please select NA (Not Applicable) if you think that the statement is not applicable to the retail shopping context.

1. My body size is different from the ideal body size.	SD	D	N	A	SA	NA
2. I may not find my size in the store.	SD	D	N	A	SA	NA
3. I may not find the exact size I am looking for in the store.	SD	D	N	A	SA	NA
4. The store may not carry my size.	SD	D	N	A	SA	NA
5. My body may not fit the garments selling in the store.	SD	D	N	A	SA	NA
6. I may not find a garment that fits my body.	SD	D	N	A	SA	NA
7. The size may not fit properly.	SD	D	N	A	SA	NA
8. The garment may not fit right.	SD	D	N	A	SA	NA
9. The fit of the garment may not be precise.	SD	D	N	A	SA	NA
10. The garment may not fit perfectly.	SD	D	N	A	SA	NA
11. The sizing system of the store may not be accurate.	SD	D	N	A	SA	NA
12. The sizes of the garments in the store may not be consistent.	SD	D	N	A	SA	NA
13. I don't trust the sizing system of the store.	SD	D	N	A	SA	NA
14. Depending on brands, the garment fit may be different.	SD	D	N	A	SA	NA
15. The garment fit may be different when I actually tried it.	SD	D	N	A	SA	NA
16. I may wear a different size in the store.	SD	D	N	A	SA	NA

17. My size may change when I go to a different store.	SD	D	N	A	SA	NA
18. I may have to wear a bigger size in the store than in other stores.	SD	D	N	A	SA	NA
19. The garment may not look good on me.	SD	D	N	A	SA	NA
20. The garment may not look nice on me.	SD	D	N	A	SA	NA
21. I may feel uncomfortable in the garment.	SD	D	N	A	SA	NA
22. The garment may not fit well.	SD	D	N	A	SA	NA
23. The size of the garment may not fit me.	SD	D	N	A	SA	NA
24. The length of the garment may not fit me.	SD	D	N	A	SA	NA
25. I may look bigger (or wider) in the garment.	SD	D	N	A	SA	NA
26. The garment fit may be different from person to person.	SD	D	N	A	SA	NA
27. The cut of the garment may be different in the store compared to other stores.	SD	D	N	A	SA	NA
28. The garment may be too small on me.	SD	D	N	A	SA	NA
29. I may feel fat when I try on the garment.	SD	D	N	A	SA	NA
30. The garment may be too tight on me.	SD	D	N	A	SA	NA
31. The garment may be too fitting to me.	SD	D	N	A	SA	NA
32. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	SD	D	N	A	SA	NA
33. The garment may not give other people a positive impression about me.	SD	D	N	A	SA	NA
34. The garment may not give other people the right impression about me.	SD	D	N	A	SA	NA
35. I may look weird in the garment.	SD	D	N	A	SA	NA
36. I may have to make additional effort to find the right size and fit of a garment in the store.	SD	D	N	A	SA	NA
37. I may have a hard time to find a right size and fit in the store.	SD	D	N	A	SA	NA
38. I may have to get alterations of the garment.	SD	D	N	A	SA	NA
39. The garment may not reflect my body proportion.	SD	D	N	A	SA	NA
40. The fit of the garment may be different from my body proportion.	SD	D	N	A	SA	NA
41. I may have to buy different sizes for the top and bottom.	SD	D	N	A	SA	NA

42. The garment may be too revealing.	SD	D	N	A	SA	NA
43. The garment may not fit all body shapes and sizes.	SD	D	N	A	SA	NA
44. I am not sure what size I should wear when shopping in the store.	SD	D	N	A	SA	NA
45. The way the garment fabric drapes on me may not work for my body shape.	SD	D	N	A	SA	NA
46. I feel confident about how the garment will fit me when shopping in the store.	SD	D	N	A	SA	NA
47. I would not buy clothing without trying it on.	SD	D	N	A	SA	NA
48. My body may not fit the garments selling in the store because their apparel items reflect the ideal body.	SD	D	N	A	SA	NA
49. I may not project the self image that I want to show other people when wearing the garment.	SD	D	N	A	SA	NA
50. The garment may look good on my body but may feel uncomfortable.	SD	D	N	A	SA	NA
51. The fit of the garment may cause discomfort.	SD	D	N	A	SA	NA

Questionnaire: Offline and Online Shopping Context

Scenario 2: Online apparel shopping context
Imagine that you visit an apparel store website to buy your new spring clothes. Please read the following statements and select ONE answer that best reflects your concern when shopping at an online store.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
SD	D	N	A	SA	NA

*Please select NA (Not Applicable) if you think that the statement is not applicable to the online shopping context.

1. My body size is different from the ideal body size.	SD	D	N	A	SA	NA
2. I may not find my size in the store.	SD	D	N	A	SA	NA
3. I may not find the exact size I am looking for in the store.	SD	D	N	A	SA	NA
4. The store may not carry my size.	SD	D	N	A	SA	NA
5. My body may not fit the garments selling in the store.	SD	D	N	A	SA	NA
6. I may not find a garment that fits my body.	SD	D	N	A	SA	NA

7. The size may not fit properly.	SD	D	N	A	SA	NA
8. The garment may not fit right.	SD	D	N	A	SA	NA
9. The fit of the garment may not be precise.	SD	D	N	A	SA	NA
10. The garment may not fit perfectly.	SD	D	N	A	SA	NA
11. The sizing system of the store may not be accurate.	SD	D	N	A	SA	NA
12. The sizes of the garments in the store may not be consistent.	SD	D	N	A	SA	NA
13. I don't trust the sizing system of the store.	SD	D	N	A	SA	NA
14. Depending on brands, the garment fit may be different.	SD	D	N	A	SA	NA
15. The garment fit may be different when I actually tried it.	SD	D	N	A	SA	NA
16. I may wear a different size in the store.	SD	D	N	A	SA	NA
17. My size may change when I go to a different store.	SD	D	N	A	SA	NA
18. I may have to wear a bigger size in the store than in other stores.	SD	D	N	A	SA	NA
19. The garment may not look good on me.	SD	D	N	A	SA	NA
20. The garment may not look nice on me.	SD	D	N	A	SA	NA
21. I may feel uncomfortable in the garment.	SD	D	N	A	SA	NA
22. The garment may not fit well.	SD	D	N	A	SA	NA
23. The size of the garment may not fit me.	SD	D	N	A	SA	NA
24. The length of the garment may not be fit me.	SD	D	N	A	SA	NA
25. I may look bigger (or wider) in the garment.	SD	D	N	A	SA	NA
26. The garment fit may be different from person to person.	SD	D	N	A	SA	NA
27. The cut of the garment may be different in the store compared to other stores.	SD	D	N	A	SA	NA
28. The garment may be too small on me.	SD	D	N	A	SA	NA
29. I may feel fat when I try on the garment.	SD	D	N	A	SA	NA
30. The garment may be too tight on me.	SD	D	N	A	SA	NA
31. The garment may be too fitting to me.	SD	D	N	A	SA	NA
32. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	SD	D	N	A	SA	NA

33. The garment may not give other people a positive impression about me.	SD	D	N	A	SA	NA
34. The garment may not give other people the right impression about me.	SD	D	N	A	SA	NA
35. I may look weird in the garment.	SD	D	N	A	SA	NA
36. I may have to make additional effort to find the right size and fit of a garment in the store.	SD	D	N	A	SA	NA
37. I may have a hard time to find a right size and fit in the store.	SD	D	N	A	SA	NA
38. I may have to get alterations of the garment.	SD	D	N	A	SA	NA
39. The garment may not reflect my body proportion.	SD	D	N	A	SA	NA
40. The fit of the garment may be different from my body proportion.	SD	D	N	A	SA	NA
41. I may have to buy different sizes for the top and bottom.	SD	D	N	A	SA	NA
42. The garment may be too revealing.	SD	D	N	A	SA	NA
43. I may receive an apparel item that doesn't fit me shopping in the store.	SD	D	N	A	SA	NA
44. The garment may not look as good as it looked on the picture when I tried it.	SD	D	N	A	SA	NA
45. The garment may look good on the picture, but not on me.	SD	D	N	A	SA	NA
46. The garment may not fit all body shapes and sizes.	SD	D	N	A	SA	NA
47. The fit of the garment may be different from what I see in the picture.	SD	D	N	A	SA	NA
48. Shopping in the store, I may have to guess if the garments fit my body.	SD	D	N	A	SA	NA
49. Shopping in the store, I may have a hard time picturing myself wearing the garment.	SD	D	N	A	SA	NA
50. I may have a hard time imagining the fit of the garment shopping in the store.	SD	D	N	A	SA	NA
51. My guess about the garment fit may not be right when shopping in the store.	SD	D	N	A	SA	NA
52. The garment on the picture may look different when I try it on at home.	SD	D	N	A	SA	NA
53. I am not sure what size I should wear when shopping in the store.	SD	D	N	A	SA	NA
54. The way the garment fabric drapes on me may not work for my body shape.	SD	D	N	A	SA	NA

55. I feel confident about how the garment will fit me when shopping in the store.	SD	D	N	A	SA	NA
56. The garment may fit differently on me than it fits on the model.	SD	D	N	A	SA	NA
57. I cannot depend on the garment fit shown on the picture.	SD	D	N	A	SA	NA
58. I would not buy clothing without trying it on.	SD	D	N	A	SA	NA
59. My body may not fit the garments selling in the store because their apparel items reflect the ideal body.	SD	D	N	A	SA	NA
60. I may not project the self image that I want to show other people when wearing the garment.	SD	D	N	A	SA	NA
61. The garment may look good on my body but may feel uncomfortable.	SD	D	N	A	SA	NA
62. The fit of the garment may cause discomfort.	SD	D	N	A	SA	NA

Please answer the following questions.

6. Are you male? _____ female? _____

7. What is your age? _____

3. What is your school major? _____

4. What year are you in?

Freshman _____
Sophomore _____
Junior _____
Senior _____

5. What is your ethnic background? (check all that apply)

African American _____
Caucasian American _____
Hispanic/Hispanic American _____
Native American _____
Asian American _____
Other _____

6. Have you ever purchased apparel online? Yes _____ No _____

Thank you so much for your participation!

APPENDIX I: DESCRIPTIVE STATISTICS (PHASE 2: EXPLORATORY FACTOR ANALYSIS)

Table I. 1. Descriptive Statistics of Concerns with Fit and Size of the Garment Items (Phase 2: Exploratory Factor Analysis)

						Skewness			*Kurtosis*		
Item	*n*	*Min*	*Max*	*M*	*SD*	*Stat*	*SE*	*c.r.*	*Stat*	*SE*	*c.r.*
Offline01	119	1	5	3.52	1.06	-.385	.22	-1.75	-.826	.440	-1.88
Offline02	120	1	5	3.03	1.22	-.179	.22	-.81	-1.28	.438	-2.92
Offline03	120	1	5	3.38	1.06	-.801	.22	-3.64	-0.32	.438	-.73
Offline04	120	1	5	2.64	1.21	.264	.22	1.20	-1.17	.438	-2.67
Offline05	120	1	5	2.98	1.14	-.054	.22	-0.25	-1.21	.438	-2.76
Offline06	120	1	5	3.07	1.11	-.285	.22	-1.30	-1.17	.438	-2.67
Offline07	120	1	5	3.66	.91	-1.495	.22	-6.80	2.04	.438	4.66
Offline08	120	1	5	3.81	.80	-1.525	.22	-6.93	3.18	.438	7.26
Offline09	120	1	5	3.79	.78	-1.259	.22	-5.72	2.47	.438	5.64
Offline10	120	1	5	3.86	.80	-1.326	.22	-6.03	2.56	.438	5.84
Offline11	120	1	5	3.64	.93	-.675	.22	-3.07	.06	.438	.14
Offline12	120	1	5	3.70	.94	-.844	.22	-3.84	.27	.438	.62
Offline13	120	1	5	2.92	0.88	.299	.22	1.36	-.62	.438	-1.42
Offline14	120	1	5	4.35	.68	-1.381	.22	-6.28	4.42	.438	10.09
Offline15	119	1	5	3.93	.76	-.964	.22	-4.38	1.97	.438	4.50
Offline16	119	1	5	3.83	.84	-1.261	.22	-5.73	1.98	.438	4.52
Offline17	120	2	5	4.24	.76	-1.147	.22	-5.21	1.76	.438	4.02
Offline18	120	1	5	3.89	.90	-1.137	.22	-5.17	1.37	.438	3.13
Offline19	120	1	5	3.73	.83	-1.276	.22	-5.80	1.68	.438	3.84
Offline20	120	1	5	3.69	.79	-1.079	.22	-4.90	1.13	.438	2.58
Offline21	137	1	5	3.69	.81	-1.131	.22	-5.14	1.53	.438	3.49
Offline22	120	1	5	3.84	.74	-1.349	.22	-6.13	2.61	.438	5.96
Offline23	120	1	5	3.75	.81	-1.269	.22	-5.77	1.97	.438	4.50
Offline24	120	1	5	3.86	.92	-.993	.22	-4.51	.54	.438	1.23
Offline25	120	1	5	3.77	.87	-1.308	.22	-5.95	2.21	.438	5.05
Offline26	120	1	5	4.32	.72	-1.531	.22	-6.96	4.35	.438	9.93
Offline27	120	1	5	4.00	.79	-1.450	.22	-6.59	3.46	.438	7.90
Offline28	120	1	5	3.61	.88	-1.008	.22	-4.58	.49	.438	1.12
Offline29	119	1	5	3.78	1.98	-.902	.22	-4.10	.45	.440	1.02
Offline30	119	1	5	3.77	.82	-.787	.22	-3.58	.34	.440	.77
Offline31	119	1	5	3.69	.87	-.991	.22	-4.50	.85	.440	1.93
Offline32	119	1	5	3.45	1.21	-.596	.22	-2.71	-.79	.440	-1.80
Offline33	119	1	5	3.14	1.04	-.337	.22	-1.53	-.85	.440	-1.93
Offline34	119	1	5	3.18	1.00	-.329	.22	-1.50	-.99	.440	-2.25
Offline35	120	1	5	3.27	1.06	-.511	.22	-2.32	-.69	.438	-1.58
Offline36	120	1	5	3.43	1.20	-.377	.22	-1.71	-.93	.438	-2.12
Offline37	120	1	5	3.21	1.15	-.183	.22	-.83	-1.06	.438	-2.42
Offline38	120	1	5	3.13	1.12	-.050	.22	-0.23	-1.09	.438	-2.49
Offline39	120	1	5	3.54	.88	-.772	.22	-3.51	.19	.438	.43
Offline40	120	1	5	3.69	.80	-.803	.22	-3.65	.78	.438	1.78
Offline41	120	1	5	3.93	.90	-1.152	.22	-5.24	1.48	.438	3.38
Offline42	120	1	5	3.27	.98	-.395	.22	-1.80	-.64	.438	-1.46
Offline43	120	1	5	4.31	.66	-.965	.22	-4.39	2.01	.438	4.59
Offline44	120	1	5	2.55	1.00	.496	.22	2.25	-.54	.438	-1.23
Offline45	120	1	5	3.78	.74	-.665	.22	-3.02	.57	.438	1.30
Offline46	120	1	5	2.35	.92	.549	.22	2.50	-.24	.438	-.55
Offline47	120	1	5	3.53	1.22	-.452	.22	-2.05	-.89	.438	-2.03
Offline48	119	1	5	3.33	1.06	-.256	.22	-1.16	-.80	.440	-1.82
Offline49	119	1	5	3.18	.98	-.381	.22	-1.73	-.73	.440	-1.66
Offline50	120	1	5	3.64	.86	-.694	.22	-3.15	-.21	.438	-.48
Offline51	120	1	5	3.63	.93	-.729	.22	-3.31	-.19	.438	-.43
Online01	119	1	5	3.55	1.06	-0.61	0.22	-2.74	-0.39	0.44	-0.88
Online02	119	1	5	2.99	1.17	-0.21	0.22	-0.95	-1.34	0.44	-3.04
Online03	119	1	5	3.37	1.13	-0.52	0.22	-2.34	-0.75	0.44	-1.70
Online04	117	1	5	3.60	1.22	0.44	0.22	1.95	-0.86	0.44	-1.94

Note. Min = Minimum, Max = Maximum, Stat = Statistic, SE = Standard error, c.r-.608. critical ratio
Scale used: 1 for 'strongly disagree', 5 for 'strongly agree', and NA for 'not applicable'

Table I.1. (continued)

						Skewness			*Kurtosis*		
Item	*n*	*Min*	*Max*	*M*	*SD*	*Stat*	*SE*	*c.r.*	*Stat*	*SE*	*c.r.*
Online05	119	1	5	3.03	1.15	-0.19	0.22	-0.85	-0.97	0.44	-2.20
Online06	120	1	5	3.31	1.10	-0.20	0.22	-0.89	-1.10	0.44	-2.52
Online07	120	1	5	3.68	0.96	-1.34	0.22	-6.08	1.49	0.44	3.41
Online08	120	1	5	3.81	0.90	-1.29	0.22	-5.85	2.00	0.44	4.57
Online09	120	1	5	3.87	0.78	-1.29	0.22	-5.85	2.27	0.44	5.17
Online10	120	1	5	3.95	0.77	-1.40	0.22	-6.34	3.58	0.44	8.16
Online11	120	1	5	3.69	0.85	-0.71	0.22	-3.19	0.36	0.44	0.82
Online12	119	1	5	3.74	0.92	-0.83	0.22	-3.73	0.14	0.44	0.32
Online13	119	1	5	3.08	0.95	0.43	0.22	1.92	-0.82	0.44	-1.86
Online14	120	1	5	4.38	0.69	-1.61	0.22	-7.30	5.28	0.44	12.05
Online15	120	1	5	3.95	0.88	-0.96	0.22	-4.36	0.90	0.44	2.06
Online16	119	1	5	3.82	0.89	-1.08	0.22	-4.87	0.82	0.44	1.85
Online17	119	1	5	4.14	0.73	-1.16	0.22	-5.24	2.35	0.44	5.34
Online18	119	2	5	3.76	0.93	-1.04	0.22	-4.68	0.96	0.44	2.18
Online19	119	1	5	3.85	0.79	-1.10	0.22	-4.95	1.74	0.44	3.94
Online20	119	1	5	3.82	0.80	-1.15	0.22	-5.20	2.12	0.44	4.81
Online21	119	1	5	3.69	0.78	-0.93	0.22	-4.18	1.04	0.44	2.35
Online22	120	1	5	3.80	0.69	-1.45	0.22	-6.56	3.24	0.44	7.40
Online23	120	1	5	3.70	0.74	-1.48	0.22	-6.68	1.98	0.44	4.52
Online24	119	1	5	3.96	0.82	-1.15	0.22	-5.20	1.84	0.44	4.18
Online25	120	1	5	3.68	0.93	-0.94	0.22	-4.26	0.69	0.44	1.57
Online26	120	1	5	4.30	0.63	-0.54	0.22	-2.43	0.43	0.44	0.98
Online27	118	1	5	4.01	0.79	-1.18	0.22	-5.29	2.27	0.44	5.13
Online28	120	1	5	3.66	0.88	-0.83	0.22	-3.75	0.52	0.44	1.20
Online29	119	1	5	3.75	0.92	-0.92	0.22	-4.16	0.87	0.44	1.97
Online30	120	1	5	3.81	0.81	-0.68	0.22	-3.10	0.26	0.44	0.59
Online31	119	1	5	3.76	0.88	-0.78	0.22	-3.50	0.35	0.44	0.80
Online32	119	1	5	3.55	1.16	-0.65	0.22	-2.91	-0.52	0.44	-1.18
Online33	120	1	5	3.29	1.09	-0.25	0.22	-1.12	-0.87	0.44	-1.99
Online34	120	1	5	3.28	1.05	-0.24	0.22	-1.06	-0.84	0.44	-1.91
Online35	119	1	5	3.55	0.95	-0.73	0.22	-3.27	-0.23	0.44	-0.53
Online36	117	1	5	3.52	1.10	-0.44	0.22	-1.95	-0.81	0.44	-1.83
Online37	118	1	5	3.23	1.15	0.09	0.22	0.39	-1.22	0.44	-2.76
Online38	119	1	5	3.29	1.09	-0.01	0.22	-0.06	-1.15	0.44	-2.61
Online39	120	1	5	3.68	0.92	-0.70	0.22	-3.15	-0.07	0.44	-0.15
Online40	120	1	5	3.84	0.87	-0.93	0.22	-4.22	0.79	0.44	1.79
Online41	120	1	5	3.96	1.05	-1.38	0.22	-6.26	1.59	0.44	3.64
Online42	119	1	5	3.40	0.99	-0.31	0.22	-1.38	-0.75	0.44	-1.70
Online43	117	1	5	3.56	1.05	-0.70	0.22	-3.14	-0.09	0.44	-0.21
Online44	119	1	5	4.18	0.85	-1.20	0.22	-5.40	1.63	0.44	3.71
Online45	120	2	5	4.26	0.75	-1.19	0.22	-5.40	1.96	0.44	4.47
Online46	120	1	5	4.31	0.74	-1.45	0.22	-6.54	3.67	0.44	8.37
Online47	120	1	5	4.28	0.67	-0.73	0.22	-3.29	0.82	0.44	1.86
Online48	115	1	5	3.46	1.08	-0.28	0.23	-1.25	-0.98	0.45	-2.18
Online49	116	1	5	3.07	1.04	0.23	0.23	1.04	-0.91	0.45	-2.04
Online50	116	1	5	3.16	1.05	-0.01	0.23	-0.05	-0.87	0.45	-1.94
Online51	116	1	5	3.50	0.95	-0.41	0.23	-1.81	-0.34	0.45	-0.75
Online52	120	1	5	4.19	0.69	-0.74	0.22	-3.35	1.07	0.44	2.44
Online53	115	1	5	3.02	1.17	0.00	0.23	0.00	-1.07	0.45	-2.39
Online54	120	1	5	3.88	0.75	-0.92	0.22	-4.14	1.86	0.44	4.25
Online55	116	1	5	2.58	2.58	0.58	0.23	2.58	1.86	0.45	4.17
Online56	120	2	5	4.33	4.33	-1.17	0.22	-5.31	2.34	0.14	16.93
Online57	120	1	5	3.98	3.98	-0.83	0.22	-3.73	0.70	0.44	1.59
Online58	120	1	5	3.20	3.20	0.04	0.22	0.19	-1.14	0.44	-2.59
Online59	117	1	5	3.78	3.38	-0.62	0.22	-2.75	-0.80	0.44	-1.81
Online60	118	1	5	3.14	3.14	-0.02	0.22	-0.08	-0.80	0.44	-1.82
Online61	120	1	5	3.60	3.60	-0.77	0.22	-3.48	0.14	0.44	0.32
Online62	120	1	5	3.73	3.73	-1.00	0.22	-4.54	1.01	0.44	2.32

APPENDIX J: CONSENT FORM
(PHASE 2: CONFIRMATORY FACTOR ANALYSIS)

EMAIL MESSAGE AND CONSENT INFORMATION

IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

Title: ISU online shopping survey with a drawing for a gift card

INVESTIGATORS

Hyejeong Kim: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 31 Mackay Hall Ames, IA 50011
Mary Lynn Damhorst: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 1068 LeBaron Hall Ames, IA 50011

Dear Participant:

You are invited to participate in a research project about fit and size of garments in online and in-store apparel shopping. The results will potentially provide valuable information to retailers about the types of concerns or risks with fit and size of garments in the online shopping context. In addition, this study will provide retailers information regarding how consumers of various body types have different concerns about fit and size of garments.

The survey is located at the website listed below. The survey website will be open between June 3 and June 10, 2008. You will be compensated in this study by the opportunity to participate in a random drawing for Target, Wal-Mart, or Starbucks Coffee gift certificates ($20.00). Ten participants randomly selected will receive the gift certificates.

Your individual responses will be kept in strict confidence. Your personal information will not be associated with your response. The principal researcher will use a protected password, to access data from the web-based survey. All identifying information that you provide for a gift card will be stored separately from your response and removed immediately after drawing. Results will be published in summary form only.

There are no foreseeable risks from participating in this study. Your participation in this study is completely voluntary. If you do not feel comfortable completing the questionnaire, you are free to discontinue at any time. There is no penalty or loss to you for not completing the survey or if you begin the survey but wish to withdraw and discontinue. You can skip any questions on the survey that you do not wish to answer. By participating, you give the researchers your consent. The questionnaire will take no more than 15 minutes of your time.

You are encouraged to ask questions at any time during this study. For further information about the study contact Hyejeong Kim, e-mail address: kim2005@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Diane Ament, Research Compliance Officer, (515) 294-3115, dament@iastate.edu.

We thank you for your participation and attention.

By clicking the website link you can start the survey.

Website link: http://humansciences.FitSurveyOff.sgizmo.com

APPENDIX K: QUESTIONNAIRE (PHASE 2: CONFIRMATORY FACTOR ANALYSIS)

QUESTIONNAIRE: OFFLINE SHOPPING CONTEXT

Imagine that you visit an APPAREL RETAIL STORE to buy your new summer clothes. Please read the following statements and select ONE answer that best reflects your concern when shopping at a retail store.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
SD	D	N	A	SA

	SD	D	N	A	SA
1. My body size is different from the ideal body size.	SD	D	N	A	SA
2. I may not find my size in the store.	SD	D	N	A	SA
3. I may not find the exact size I am looking for in the store.	SD	D	N	A	SA
4. The store may not carry my size.	SD	D	N	A	SA
5. My body may not fit the garments selling in the store.	SD	D	N	A	SA
6. I may not find a garment that fits my body.	SD	D	N	A	SA
7. The size may not fit properly.	SD	D	N	A	SA
8. The garment may not fit right.	SD	D	N	A	SA
9. The fit of the garment may not be precise.	SD	D	N	A	SA
10. The garment may not fit perfectly.	SD	D	N	A	SA
11. The sizing system of the store may not be accurate.	SD	D	N	A	SA
12. The sizes of the garments in the store may not be consistent.	SD	D	N	A	SA
13. I don't trust the sizing system of the store.	SD	D	N	A	SA
14. Depending on brands, the garment fit may be different.	SD	D	N	A	SA
15. The garment fit may be different when I actually tried it.	SD	D	N	A	SA
16. I may wear a different size in the store.	SD	D	N	A	SA
17. My size may change when I go to a different store.	SD	D	N	A	SA
18. I may have to wear a bigger size in the store than in other stores.	SD	D	N	A	SA
19. The garment may not look good on me.	SD	D	N	A	SA
20. The garment may not look nice on me.	SD	D	N	A	SA
21. I may feel uncomfortable in the garment.	SD	D	N	A	SA
22. The garment may not fit well.	SD	D	N	A	SA
23. The size of the garment may not fit me.	SD	D	N	A	SA

24. The length of the garment may not fit me.	SD	D	N	A	SA
25. I may look bigger (or wider) in the garment.	SD	D	N	A	SA
26. The garment fit may be different from person to person.	SD	D	N	A	SA
27. The cut of the garment may be different in the store compared to other stores.	SD	D	N	A	SA
28. The garment may be too small on me.	SD	D	N	A	SA
29. I may feel fat when I try on the garment.	SD	D	N	A	SA
30. The garment may be too tight on me.	SD	D	N	A	SA
31. The garment may be too fitting to me.	SD	D	N	A	SA
32. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	SD	D	N	A	SA
33. The garment may not give other people a positive impression about me.	SD	D	N	A	SA
34. The garment may not give other people the right impression about me.	SD	D	N	A	SA
35. I may look weird in the garment.	SD	D	N	A	SA
36. I may have to make additional effort to find the right size and fit of a garment in the store.	SD	D	N	A	SA
37. I may have a hard time to find a right size and fit in the store.	SD	D	N	A	SA
38. I may have to get alterations of the garment.	SD	D	N	A	SA
39. The garment may not reflect my body proportion.	SD	D	N	A	SA
40. The fit of the garment may be different from my body proportion.	SD	D	N	A	SA
41. I may have to buy different sizes for the top and bottom.	SD	D	N	A	SA
42. The garment may be too revealing.	SD	D	N	A	SA
43. The garment may not fit all body shapes and sizes.	SD	D	N	A	SA
44. I am not sure what size I should wear when shopping in the store.	SD	D	N	A	SA
45. The way the garment fabric drapes on me may not work for my body shape.	SD	D	N	A	SA
46. I feel confident about how the garment will fit me when shopping in the store.	SD	D	N	A	SA
47. I would not buy clothing without trying it on.	SD	D	N	A	SA
48. My body may not fit the garments selling in the store because their apparel items reflect the ideal	SD	D	N	A	SA

body.					
49. I may not project the self image that I want to show other people when wearing the garment.	SD	D	N	A	SA
50. The garment may look good on my body but may feel uncomfortable.	SD	D	N	A	SA
51. The fit of the garment may cause discomfort.	SD	D	N	A	SA
52. In general, I am concerned about the fit and size of the garment when shopping for apparel.	SD	D	N	A	SA
53. The fit and size of the garment is one of the biggest concerns when I shop for apparel.	SD	D	N	A	SA

Please answer the following questions.

54. Are you male? _____ female? _____
55. What is your age? _____open ended_____
64. What is your school major? _____open ended _____
65. What year are you in?
    - Freshman _____
    - Sophomore _____
    - Junior _____
    - Senior _____
    - Graduate _____
66. What is your ethnic background?
    - African American _____
    - Caucasian /White American _____
    - Latino/Hispanic American _____
    - Native American _____
    - Asian American _____

66-1.Other (please specify) _____

67. In a typical month, how often do you purchase clothing?
    - None _____
    - 1-2 times _____
    - 3-4 times _____
    - 5-6 times _____
    - 7-8 times _____
    - 9-10 times _____

68. How much money did you spend for clothing purchases over the past 30 days?

0- $75	_____
$76-150	_____
$151-225	_____
$226-300	_____
$301-375	_____
$376-450	_____
$451-525	_____
$526-600	_____
More than $600	_____

Thank you so much for completing the questionnaire.

QUESTIONNAIRE: ONLINE SHOPPING CONTEXT

Imagine that you visit an APPAREL STORE WEBSITE to buy your new summer clothes. Please read the following statements and select ONE answer that best reflects your concern when shopping at an online store.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
SD	D	N	A	SA

	SD	D	N	A	SA
1. My body size is different from the ideal body size.	SD	D	N	A	SA
2. I may not find my size in the website.	SD	D	N	A	SA
3. I may not find the exact size I am looking for in the website.	SD	D	N	A	SA
4. The website may not carry my size.	SD	D	N	A	SA
5. My body may not fit the garments selling in the website.	SD	D	N	A	SA
6. I may not find a garment that fits my body.	SD	D	N	A	SA
7. The size may not fit properly.	SD	D	N	A	SA
8. The garment may not fit right.	SD	D	N	A	SA
9. The fit of the garment may not be precise.	SD	D	N	A	SA
10. The garment may not fit perfectly.	SD	D	N	A	SA
11. The sizing system of the website may not be accurate.	SD	D	N	A	SA
12. The sizes of the garments in the website may not be consistent.	SD	D	N	A	SA
13. I don't trust the sizing system of the website.	SD	D	N	A	SA
14. Depending on brands, the garment fit may be different.	SD	D	N	A	SA
15. The garment fit may be different when I actually tried it.	SD	D	N	A	SA
16. I may wear a different size in the website.	SD	D	N	A	SA
17. My size may change when I go to a different website.	SD	D	N	A	SA
18. I may have to wear a bigger size in the website than in other websites.	SD	D	N	A	SA
19. The garment may not look good on me.	SD	D	N	A	SA
20. The garment may not look nice on me.	SD	D	N	A	SA
21. I may feel uncomfortable in the garment.	SD	D	N	A	SA
22. The garment may not fit well.	SD	D	N	A	SA
23. The size of the garment may not fit me.	SD	D	N	A	SA
24. The length of the garment may not fit me.	SD	D	N	A	SA
25. I may look bigger (or wider) in the garment.	SD	D	N	A	SA
26. The garment fit may be different from person to person.	SD	D	N	A	SA
27. The cut of the garment may be different in the website compared to other websites.	SD	D	N	A	SA
28. The garment may be too small on me.	SD	D	N	A	SA

29. I may feel fat when I try on the garment.	SD	D	N	A	SA
30. The garment may be too tight on me.	SD	D	N	A	SA
31. The garment may be too fitting to me.	SD	D	N	A	SA
32. The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	SD	D	N	A	SA
33. The garment may not give other people a positive impression about me.	SD	D	N	A	SA
34. The garment may not give other people the right impression about me.	SD	D	N	A	SA
35. I may look weird in the garment.	SD	D	N	A	SA
36. I may have to make additional effort to find the right size and fit of a garment in the website.	SD	D	N	A	SA
37. I may have a hard time to find a right size and fit in the website.	SD	D	N	A	SA
38. I may have to get alterations of the garment.	SD	D	N	A	SA
39. The garment may not reflect my body proportion.	SD	D	N	A	SA
40. The fit of the garment may be different from my body proportion.	SD	D	N	A	SA
41. I may have to buy different sizes for the top and bottom.	SD	D	N	A	SA
42. The garment may be too revealing.	SD	D	N	A	SA
43. I may receive an apparel item that doesn't fit me shopping in the website.	SD	D	N	A	SA
44. The garment may not look as good as it looked on the website when I tried it.	SD	D	N	A	SA
45. The garment may look good on the website, but not on me.	SD	D	N	A	SA
46. The garment may not fit all body shapes and sizes.	SD	D	N	A	SA
47. The fit of the garment may be different from what I see on the website.	SD	D	N	A	SA
48. Shopping in the website, I may have to guess if the garment fits my body.	SD	D	N	A	SA
49. Shopping in the website, I may have a hard time picturing myself wearing the garment.	SD	D	N	A	SA
50. I may have a hard time imagining the fit of the garment shopping in the website.	SD	D	N	A	SA
51. My guess about the garment fit may not be correct when shopping in the website.	SD	D	N	A	SA
52. The garment on the website may look different when I try it on at home.	SD	D	N	A	SA
53. I am not sure what size I should wear when shopping in the website.	SD	D	N	A	SA
54. The way the garment fabric drapes on me may not work	SD	D	N	A	SA

for my body shape.					
55. I feel confident about how the garment will fit me when shopping in the website.	SD	D	N	A	SA
56. The garment may fit differently on me than it fits on the model.	SD	D	N	A	SA
57. I cannot depend on the garment fit shown on the website.	SD	D	N	A	SA
58. I would not buy clothing without trying it on.	SD	D	N	A	SA
59. My body may not fit the garments selling in the website because their apparel items reflect the ideal body.	SD	D	N	A	SA
60. I may not project the self image that I want to show other people when wearing the garment.	SD	D	N	A	SA
61. The garment may look good on my body but may feel uncomfortable.	SD	D	N	A	SA
62. The fit of the garment may cause discomfort.	SD	D	N	A	SA
63. In general, I am concerned about the fit and size of the garment when shopping for apparel online.	SD	D	N	A	SA
64. The fit and size of the garment is the biggest concern when I shop for apparel online.	SD	D	N	A	SA

Please answer the following questions.

65. Are you male? _____ female? _____
66. What is your age? _____
63. What is your school major? _____
65. What year are you in?

Freshman _____
Sophomore _____
Junior _____
Senior _____
Graduate _____

66. What is your ethnic background?

African American _____
Caucasian/ White American _____
Latino/Hispanic American _____
Native American _____
Asian American _____
66-1.Other (please specify) _____

69. Have you ever purchased apparel online? Yes _____ No _____

70. In a typical month, how often do you purchase clothing online?

None	_____
1-2 times	_____
3-4 times	_____
5-6 times	_____
7-8 times	_____
9-10 times	_____

71. How much money did you spend for online clothing purchases over the past 30 days?

0-$75	_____
$76-150	_____
$151-225	_____
$226-300	_____
$301-375	_____
$376-450	_____
$451-525	_____
$526-600	_____
More than $600	_____

Thank you so much for completing the questionnaire.

APPENDIX L: DESCRIPTIVE STATISTICS (PHASE 2: CONFIRMATORY FACTOR ANALYSIS)

Table L. 1. Descriptive Statistics of Concerns with Fit and Size of Garments Items (Phase 2: Confirmatory Factor Analysis)

						Skewness			*Kurtosis*		
Item	*n*	*Min*	*Max*	*M*	*SD*	*Stat*	*SE*	*c.r.*	*Stat*	*SE*	*c.r.*
Offline01	160	1	5	3.37	1.19	-0.45	0.19	-2.36	-0.76	0.38	-2.00
Offline02	160	1	5	2.71	1.27	0.44	0.19	2.31	-1.00	0.38	-2.64
Offline03	160	1	5	3.36	1.17	-0.54	0.19	-2.80	-0.74	0.38	-1.94
Offline04	160	1	5	2.40	1.26	0.64	0.19	3.35	-0.69	0.38	-1.81
Offline05	160	1	5	2.99	1.31	-0.06	0.19	-0.32	-1.32	0.38	-3.47
Offline06	160	1	5	3.11	1.31	-0.29	0.19	-1.48	-1.23	0.38	-3.23
Offline07	160	1	5	3.59	1.16	-0.90	0.19	-4.66	-0.06	0.38	-0.14
Offline08	160	1	5	3.72	1.08	-1.01	0.19	-5.26	0.47	0.38	1.23
Offline09	160	1	5	3.75	1.07	-1.20	0.19	-6.26	0.89	0.38	2.34
Offline10	160	1	5	3.81	1.01	-1.10	0.19	-5.74	0.88	0.38	2.31
Offline11	160	1	5	3.46	0.98	-0.60	0.19	-3.11	-0.26	0.38	-0.69
Offline12	160	1	5	3.68	1.05	-0.61	0.19	-3.15	-0.49	0.38	-1.29
Offline13	160	1	5	2.96	1.00	0.15	0.19	0.79	-0.61	0.38	-1.60
Offline14	160	1	5	4.34	0.78	-1.49	0.19	-7.74	3.02	0.38	7.93
Offline15	160	1	5	3.68	0.99	-0.52	0.19	-2.69	-0.41	0.38	-1.08
Offline16	160	1	5	3.59	0.99	-0.65	0.19	-3.36	-0.14	0.38	-0.37
Offline17	160	1	5	3.93	0.98	-0.90	0.19	-4.69	0.25	0.38	0.64
Offline18	160	1	5	3.65	1.06	-0.71	0.19	-3.68	-0.13	0.38	-0.35
Offline19	160	1	5	3.73	0.94	-0.65	0.19	-3.37	-0.05	0.38	-0.14
Offline20	160	1	5	3.68	0.95	-0.56	0.19	-2.91	-0.20	0.38	-0.53
Offline21	160	1	5	3.51	1.03	-0.62	0.19	-3.24	-0.44	0.38	-1.16
Offline22	160	1	5	3.69	0.92	-0.91	0.19	-4.74	0.48	0.38	1.26
Offline23	160	1	5	3.57	0.97	-0.89	0.19	-4.64	0.35	0.38	0.92
Offline24	160	1	5	3.85	0.99	-0.93	0.19	-4.85	0.55	0.38	1.45
Offline25	160	1	5	3.41	1.11	-0.48	0.19	-2.50	-0.57	0.38	-1.50
Offline26	160	1	5	3.98	0.88	-1.09	0.19	-5.66	1.60	0.38	4.19
Offline27	160	1	5	3.79	0.93	-1.07	0.19	-5.58	1.09	0.38	2.86
Offline28	160	1	5	3.46	1.06	-0.47	0.19	-2.46	-0.56	0.38	-1.47
Offline29	160	1	5	3.34	1.27	-0.41	0.19	-2.14	-0.98	0.38	-2.58
Offline30	160	1	5	3.56	1.08	-0.65	0.19	-3.37	-0.45	0.38	-1.17
Offline31	160	1	5	3.41	1.14	-0.51	0.19	-2.68	-0.68	0.38	-1.79
Offline32	160	1	5	3.48	1.20	-0.65	0.19	-3.36	-0.51	0.38	-1.33
Offline33	160	1	5	3.33	1.11	-0.33	0.19	-1.70	-0.73	0.38	-1.92
Offline34	160	1	5	3.26	1.12	-0.25	0.19	-1.29	-0.87	0.38	-2.29
Offline35	160	1	5	3.41	1.02	-0.57	0.19	-2.99	-0.31	0.38	-0.81
Offline36	160	1	5	3.57	1.13	-0.78	0.19	-4.05	-0.22	0.38	-0.56
Offline37	160	1	5	3.46	1.14	-0.61	0.19	-3.15	-0.47	0.38	-1.24
Offline38	160	1	5	2.86	1.24	0.12	0.19	0.60	-1.00	0.38	-2.62
Offline39	160	1	5	3.43	1.11	-0.56	0.19	-2.91	-0.49	0.38	-1.27
Offline40	160	1	5	3.72	0.94	-0.88	0.19	-4.60	0.60	0.38	1.57
Offline41	160	1	5	3.66	1.15	-0.75	0.19	-3.92	-0.38	0.38	-1.01
Offline42	160	1	5	3.37	1.18	-0.41	0.19	-2.11	-0.71	0.38	-1.87
Offline43	160	1	5	4.02	0.86	-0.98	0.19	-5.11	0.94	0.38	2.46
Offline44	160	1	5	3.24	1.07	-0.21	0.19	-1.07	-0.95	0.38	-2.50
Offline45	160	1	5	3.56	1.07	-0.78	0.19	-4.05	-0.10	0.38	-0.25
Offline46	160	1	5	3.00	1.06	0.10	0.19	0.49	-0.73	0.38	-1.93
Offline47	160	1	5	3.89	1.21	-0.80	0.19	-4.17	-0.45	0.38	-1.19
Offline48	160	1	5	3.33	1.24	-0.26	0.19	-1.33	-1.06	0.38	-2.78
Offline49	160	1	5	3.14	1.10	-0.12	0.19	-0.60	-0.82	0.38	-2.16
Offline50	160	1	5	3.28	1.08	-0.48	0.19	-2.48	-0.70	0.38	-1.84
Offline51	160	1	5	3.35	1.09	-0.50	0.19	-2.59	-0.64	0.38	-1.67

Note. Min = Minimum, Max = Maximum, Stat = Statistic, SE = Standard error, c.r. = critical ratio
Scale used: 1 for ‘strongly disagree’, 5 for ‘strongly agree’

Table L.1. (continued)

						Skewness			*Kurtosis*		
Item	*n*	*Min*	*Max*	*M*	*SD*	*Stat*	*SE*	*c.r.*	*Stat*	*SE*	*c.r.*
Online01	129	1	5	3.38	1.16	-0.45	0.21	-2.11	-0.83	0.42	-1.95
Online02	129	1	5	2.53	1.29	0.43	0.21	2.04	-1.06	0.42	-2.50
Online03	129	1	5	2.90	1.25	-0.08	0.21	-0.35	-1.21	0.42	-2.86
Online04	129	1	5	2.41	1.27	0.71	0.21	3.34	-0.67	0.42	-1.59
Online05	129	1	5	2.97	1.27	-0.03	0.21	-0.16	-1.21	0.42	-2.87
Online06	129	1	5	2.89	1.23	0.06	0.21	0.26	-1.18	0.42	-2.79
Online07	129	1	5	3.61	1.00	-0.81	0.21	-3.81	0.25	0.42	0.59
Online08	129	1	5	3.69	0.97	-0.99	0.21	-4.63	0.78	0.42	1.83
Online09	129	1	5	3.71	0.94	-0.87	0.21	-4.10	0.52	0.42	1.24
Online10	129	1	5	3.82	0.92	-1.03	0.21	-4.85	1.08	0.42	2.56
Online11	129	1	5	3.53	0.98	-0.82	0.21	-3.84	-0.03	0.42	-0.06
Online12	129	1	5	3.51	0.96	-0.81	0.21	-3.81	0.03	0.42	0.07
Online13	129	1	5	3.26	1.06	-0.39	0.21	-1.82	-0.71	0.42	-1.67
Online14	129	1	5	4.20	0.84	-1.44	0.21	-6.74	2.87	0.42	6.78
Online15	129	1	5	3.82	0.88	-0.97	0.21	-4.57	1.38	0.42	3.26
Online16	129	1	5	3.64	0.93	-0.97	0.21	-4.56	0.79	0.42	1.87
Online17	129	1	5	3.93	0.86	-1.29	0.21	-6.08	2.40	0.42	5.68
Online18	129	1	5	3.64	1.01	-0.83	0.21	-3.91	0.44	0.42	1.04
Online19	129	1	5	3.71	0.86	-0.84	0.21	-3.92	0.80	0.42	1.89
Online20	129	1	5	3.74	0.81	-0.83	0.21	-3.88	1.24	0.42	2.94
Online21	129	1	5	3.57	0.85	-0.92	0.21	-4.31	0.86	0.42	2.02
Online22	129	1	5	3.86	0.73	-1.02	0.21	-4.81	2.19	0.42	5.17
Online23	129	1	5	3.74	0.78	-1.10	0.21	-5.15	1.87	0.42	4.43
Online24	129	1	5	3.93	0.86	-0.92	0.21	-4.31	1.26	0.42	2.99
Online25	129	1	5	3.39	1.08	-0.56	0.21	-2.63	-0.23	0.42	-0.54
Online26	129	1	5	4.07	0.80	-1.14	0.21	-5.36	2.49	0.42	5.89
Online27	129	1	5	3.73	0.85	-1.05	0.21	-4.91	1.10	0.42	2.59
Online28	129	1	5	3.57	0.99	-0.87	0.21	-4.08	0.25	0.42	0.59
Online29	129	1	5	3.29	1.19	-0.66	0.21	-3.10	-0.56	0.42	-1.33
Online30	129	1	5	3.58	0.97	-0.93	0.21	-4.36	0.64	0.42	1.51
Online31	129	1	5	3.43	0.98	-0.77	0.21	-3.60	0.25	0.42	0.59
Online32	129	1	5	3.22	1.12	-0.41	0.21	-1.91	-0.67	0.42	-1.58
Online33	129	1	5	3.09	0.99	-0.37	0.21	-1.73	-0.50	0.42	-1.17
Online34	129	1	5	3.09	1.00	-0.38	0.21	-1.77	-0.58	0.42	-1.36
Online35	129	1	5	3.36	0.95	-0.68	0.21	-3.20	-0.17	0.42	-0.41
Online36	129	1	5	3.42	1.05	-0.70	0.21	-3.31	-0.15	0.42	-0.35
Online37	129	1	5	3.40	1.07	-0.60	0.21	-2.79	-0.30	0.42	-0.72
Online38	129	1	5	3.12	1.11	-0.48	0.21	-2.24	-0.70	0.42	-1.66
Online39	129	1	5	3.42	1.00	-0.64	0.21	-2.98	0.11	0.42	0.26
Online40	129	1	5	3.74	0.84	-1.17	0.21	-5.47	1.80	0.42	4.24
Online41	129	1	5	3.79	0.90	-1.02	0.21	-4.77	1.20	0.42	2.83
Online42	129	1	5	3.04	1.03	-0.17	0.21	-0.77	-0.70	0.42	-1.65
Online43	129	1	5	3.69	0.84	-1.07	0.21	-5.01	1.53	0.42	3.62
Online44	129	1	5	3.83	0.79	-1.22	0.21	-5.73	2.30	0.42	5.43
Online45	129	1	5	3.95	0.81	-1.23	0.21	-5.77	2.43	0.42	5.74
Online46	129	1	5	4.09	0.88	-1.24	0.21	-5.80	1.90	0.42	4.48
Online47	129	1	5	3.75	0.93	-0.92	0.21	-4.31	0.75	0.42	1.78
Online48	129	1	5	3.93	0.86	-0.93	0.21	-4.38	1.42	0.42	3.35
Online49	129	1	5	3.40	1.11	-0.45	0.21	-2.11	-0.63	0.42	-1.48
Online50	129	1	5	3.61	0.95	-0.78	0.21	-3.66	0.43	0.42	1.01
Online51	129	1	5	3.79	0.82	-1.26	0.21	-5.90	2.38	0.42	5.63
Online52	129	1	5	3.93	0.86	-1.14	0.21	-5.37	2.09	0.42	4.94

Table L.1. (continued)

Online53	129	1	5	3.49	1.07	-0.73	0.21	-3.43	-0.21	0.42	-0.50
Online54	129	1	5	3.62	1.01	-0.80	0.21	-3.75	0.21	0.42	0.51
Online55	129	1	5	2.91	1.06	0.09	0.21	0.44	-0.75	0.42	-1.77
Online56	129	1	5	3.95	0.78	-1.19	0.21	-5.59	2.70	0.42	6.38
Online57	129	1	5	3.40	0.92	-0.53	0.21	-2.48	0.00	0.42	0.01
Online58	129	1	5	2.89	1.29	0.14	0.21	0.65	-1.11	0.42	-2.63
Online59	129	1	5	3.34	1.00	-0.54	0.21	-2.53	-0.48	0.42	-1.14
Online60	129	1	5	3.02	0.94	-0.43	0.21	-2.01	-0.50	0.42	-1.19
Online61	129	1	5	3.20	1.00	-0.51	0.21	-2.40	-0.46	0.42	-1.09
Online62	129	1	5	3.26	0.96	-0.54	0.21	-2.51	-0.58	0.42	-1.36

APPENDIX M: CORRELATIONS AMONG 22 ITEMS (PHASE 2: CONFIRMATORY FACTOR ANALYSIS)

Table M.1. Correlation Coefficients between Concerns with Fit and Size of Garments Items in the Offline Shopping Context

Offline Shopping Context (n = 22)													
	Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1	CFSG1	1												
2	CFSG2	.555	1											
3	CFSG3	.553	.585	1										
4	CFSG4	.475	.523	.640	1									
5	CFSG5	.577	.497	.489	.495	1								
6	CFSG6	.479	.495	.422	.458	.576	1							
7	CFSG7	.453	.346	.535	.577	.471	.358	1						
8	CFSG8	.507	.366	.629	.589	.500	.416	.891	1					
9	CFSG9	.446	.338	.610	.628	.470	.430	.764	.827	1				
10	CFSG10	.302	.215	.354	.424	.202	.198	.558	.464	.411	1			
11	CFSG11	.316	.168*	.419	.455	.271	.295	.658	.606	.595	.680	1		
12	CFSG12	.494	.362	.403	.497	.411	.350	.695	.617	.524	.704	.593	1	
13	CFSG13	.449	.386	.449	.479	.382	.297	.685	.595	.528	.635	.510	.781	1
14	CFSG14	504	.488	.359	.453	.590	.770	.423	.445	.467	.289	.336	.420	.410
15	CFSG15	.364	.391	.417	.478	.449	.517	.358	.371	.341	.298	.329	.393	.350
16	CFSG16	.297	.386	.358	.453	.426	.497	.312	.344	.381	.268	.265	.367	.325
17	CFSG17	.371	.424	.433	.445	.378	.314	.275	.313	.255	.274	.274	.330	.353
18	CFSG18	.410	.345	.362	.423	.364	.417	.340	.355	.389	.283	.311	.391	.283
19	CFSG19	.400	.471	.479	.459	.373	.407	.444	.422	.467	.384	.365	.390	.350
20	CFSG20	.292	.240	.305	.234	.432	.189	.265	.190	.192	.150*	.069*	.226	.295
21	CFSG21	.285	.240	.286	.333	.302	.268	.437	.398	.420	.245	.203	.350	.345
22	CFSG22	.265	.276	.219	.242	.258	.193	.206	.156*	.207	.186	.065*	.285	.284

	14	15	16	17	18	19	20	21	22
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14	1								
15	.469	1							
16	.467	.885	1						
17	.337	.557	.592	1					
18	.436	.608	.598	.408	1				
19	.400	.666	.680	.439	.498	1			
20	.217	.281	.281	.208	.308	.272	1		
21	.356	.386	.366	.229	.366	.431	.562	1	
22	.307	.230	.213	.135	.359	.323	.539	.573	1

Note. All correlation coefficients were significant with a p-value < .05 except for those marked with an asterisk (*).
* $p > .05$

Table M.2. Correlation Coefficients between Concerns with Fit and Size of Garments Items in the Online Shopping Context

Offline Shopping Context (n = 22)														
	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	CFSG1	1													
2	CFSG2	.232	1												
3	CFSG3	.444	.584	1											
4	CFSG4	.258	.413	.481	1										
5	CFSG5	.281	.298	.326	.428	1									
6	CFSG6	.345	.323	.361	.385	.781	1								
7	CFSG7	.375	.294	.424	.395	.668	.712	1							
8	CFSG8	.366	.278	.422	.350	.655	.686	.833	1						
9	CFSG9	.362	.331	.325	.281	.314	.253	.273	.229	1					
10	CFSG10	.241	.282	.212	.234	.229	.257	.236	.159*	.669	1				
11	CFSG11	.256	.320	.280	.235	.250	.290	.276	.192*	.645	.904	1			
12	CFSG12	.419	.384	.436	.392	.278	.357	.313	.281	.554	.525	.587	1		
13	CFSG13	.168	.416	.248	.182*	.306	.236	.234	.141*	.497	.510	.539	.380	1	
14	CFSG14	.228	.261	.183*	.137*	.257	.285	.294	.128*	.499	.610	.629	.444	.578	1
15	CFSG15	.203	.274	.192*	.220	.170*	.212	.147*	.043*	.280	.270	.283	.455	.432	.299
16	CFSG16	.427	.206	.402	.354	.251	.319	.283	.274	.248	.356	.361	.433	.394	.326
17	CFSG17	.415	.144	.302	.168*	.146*	.290	.244	.280	.234	.278	.254	.354	.214	.166*
18	CFSG18	.482	.022	.238	.154*	.203	.255	.258	.301	.216	.096*	.088*	.183*	.078*	.031*
19	CFSG19	.265	.224	.261	.226	.152*	.295	.292	.255	.240	.221	.161*	.356	.122*	.168*
20	CFSG20	.340	.320	.327	.395	.347	.223	.267	.205	.450	.480	.507	.387	.484	.476
21	CFSG21	.383	.427	.496	.432	.315	.241	.299	.282	.443	.480	.495	.446	.486	.438
22	CFSG22	.422	.288	.493	.477	.225	.269	.270	.310	.477	.407	.398	.422	.367	.261

	15	16	17	18	19	20	21	22
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15	1							
16	.493	1						
17	.298	.555	1					
18	.219	.423	.382	1				
19	.488	.441	.407	.483	1			
20	.244	.381	.273	.229	165*	1		
21	.325	.570	.402	.304	.367	.718	1	
22	.339	.684	.437	.468	.476	.462	.680	1

Note. All correlation coefficients were significant with a p-value < .05 except for those marked with an asterisk (*).
* $p > .05$

APPENDIX N: IRB HUMAN SUBJECT REVIEW (PHASE 3)

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Assurances
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

DATE: February 28, 2008

TO: Hye-Jeong Kim
c/o Mary Lynn Damhorst, 1068 LeBaron Hall

CC: Mary Lynn Damhorst
1068 LeBaron Hall

FROM: Jan Canny, IRB Administrator
Office of Research Assurances

TITLE: **The impact of body image on affective/aesthetic attitude, fashion involvement, concern with fit, and loyalty intention in online apparel shopping**

IRB ID: 08-055 **Study Review Date:** 18 February 2008

The Institutional Review Board (IRB) Chair has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- **You do not need to submit an application for annual continuing review.**
- **You must carry out the research as proposed in the IRB application**, including obtaining and documenting (signed) informed consent if you have stated in your application that you will do so or if required by the IRB.
- **Any modification of this research should be submitted to the IRB on a Continuing Review and/or Modification form, prior to making any changes**, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

Please be sure to **use the documents with the IRB approval stamp** in your research.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

08-055 X 2/12/10

For IRB Use Only		
	Review Date: February 18, 2008	IRB ID: 08-055
	Approval Date: February 28, 2008	Length of Approval: n/a - exempt
	Approval Expiration Date: n/a - exempt	FULL Committee Review: no
	EXEMPT per 45 CFR 46.101(b): 2 Date: 2/18/08	Minimal Risk: yes
	EXPEDITED per 45 CFR 46.110(b) _____	More than Minimal Risk: no
	Category _____, Letter _____	Project Closed Date: _____

IRB FEB 07 2008

ISU NEW HUMAN SUBJECTS RESEARCH FORM

ORIGINAL

SECTION I: GENERAL INFORMATION

Principal Investigator (PI): Hye-Jeong Kim	Phone: 614-439-5142	Fax:
Degrees: Master	Correspondence Address: 3305 Roy Key Ave #10 Ames IA, 50010	
Department: Apparel, Educational Studies, & Hospitality management	Email Address: kim2005@iastate.edu	
Center/Institute: Iowa State University	College: College of Human Sciences	
PI Level: ☐ Faculty ☐ Staff ☐ Postdoctoral ☒ Graduate Student ☐ Undergraduate Student		

Title of Project: The impact of body image on affective/aesthetic attitude, fashion involvement, concern with fit, and loyalty intention in online apparel shopping
Project Period (Include Start and End Date): [*mm/dd/yy*][*2/15/2008*] to [*mm/yy/dd*][*3/1/2011*]

FOR STUDENT PROJECTS	
Name of Major Professor/Supervising Faculty: Dr. Mary Lynn Damhorst	Signature of Major Professor/Supervising Faculty: [redacted]
Phone: 515-294-9919	Campus Address: 1068 LeBaron Hall
Department: Apparel, Educational Studies, & Hospitality management	Email Address: mldmhrst@iastate.edu
Type of Project: (check all that apply) ☒ Research ☐ Thesis ☒ Dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project) ☐ Other. Please specify:	

KEY PERSONNEL

List all members and relevant experience of the project personnel. This information is intended to inform the committee of the training and background related to the specific procedures that the each person will perform on the project.

NAME & DEGREE(S)	SPECIFIC DUTIES ON PROJECT	TRAINING & EXPERIENCE RELATED TO PROCEDURES PERFORMED, DATE OF TRAINING
Hye-Jeong Kim, M.S.	Principal researcher	ISU Human subjects training, 9/25/2005
Mary Lynn Damhorst, PhD	Supervisor	ISU Human Subjects Training, 7/20/2000

Add New Row

FUNDING INFORMATION

Internally funded, please provide account number:
Externally funded, please provide funding source and account number:
Funding is pending please provide OSPA Record ID on GoldSheet:
Title on GoldSheet if Different Than Above:
Other: *e.g., funding will be applied for later.*

SCIENTIFIC REVIEW

Although the compliance committees are not intended to conduct peer review of research proposals, the federal regulations include language such as "consistent with sound research design," "rationale for involving animals or humans" and "scientifically valuable research," which requires that the committees consider in their review the general scientific relevance of a research study. Proposals that do not meet these basic tests are not justifiable and cannot be approved. If a compliance review committee(s) has concerns about the scientific merit of a project and the project was not competitively funded by peer review or was funded by corporate sponsors, the project may be referred to a scientific review committee. The scientific review committee will be ad hoc and will consist of your ISU peers and outside experts as needed. If this situation arises, the PI will be contacted and given the option of agreeing that a consultant may be contacted or withdrawing the proposal from consideration.

☒ Yes ☐ No Has or will this project receive peer review?

If the answer is "yes," please indicate who did or will conduct the review: The research design and instruments were reviewed by the Program of Study Committee

If a review was conducted, please indicate the outcome of the review: The outcome was positive; minor modifications were made to wording on instrument.

NOTE: RESPONSE CELLS WILL EXPAND AS YOU TYPE AND PROVIDE SUFFICIENT SPACE FOR YOUR RESPONSE.

COLLECTION OR RECEIPT OF SAMPLES

Will you be: (Please check all the apply.)

☐ Yes ☒ No Receiving samples from outside of ISU? See examples below.
☐ Yes ☒ No Sending samples outside of ISU? See examples below.

Examples include: genetically modified organisms, body fluids, tissue samples, blood samples, pathogens.

If you will be receiving samples from or sending samples outside of ISU, please identify the name of the outside organization(s) and the identity of the samples you will be sending or receiving outside of ISU:

Please note that some samples may require a USDA Animal Plant Health Inspection Service (APHIS) permit, a USPHS Centers for Disease Control and Prevention (CDC) Import Permit for Etiologic Agents, a Registration for Select Agents, High Consequence Livestock Pathogens and Toxins or Listed Plant Pathogens, or a Material Transfer Agreement (MTA) (http://www.ehs.iastate.edu/bs/shipping.htm).

SECTION II: APPLICATION FOR INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

☒ Yes ☐ No Does this project involve human research participants? If the answer "no" is checked, you will automatically moves to a question regarding the involvement of radiation producing devices in your project.

SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION (EH&S)

☐ Yes ☒ No Does this project involve laboratory chemicals, human cell lines or tissue culture (primary OR immortalized), or human blood components, body fluid or tissues? If the answer is "no" is checked you will automatically move to a question regarding the involvement of human research participants in your project.

ASSURANCE

- I certify that the information provided in this application is complete and accurate and consistent with any proposal(s) submitted to external funding agencies.
- I agree to provide proper surveillance of this project to ensure that the rights and welfare of the human subject or welfare of animal subjects are protected. I will report any problems to the appropriate compliance review committee(s).
- I agree that I will not begin this project until receipt of official approval from all appropriate committee(s).
- I agree that modifications to the originally approved project will not take place without prior review and approval by the appropriate committee(s), and that all activities will be performed in accordance with all applicable federal, state, local and Iowa State University policies.

CONFLICT OF INTEREST

A conflict of interest can be defined as a set of conditions in which an investigator's or key personnel's judgment regarding a project (including human or animal subject welfare, integrity of the research) may be influenced by a secondary interest (e.g., the proposed project and/or a relationship with the sponsor). ISU's Conflict of Interest Policy requires that investigators and key personnel disclose any significant financial interests or relationships that may present an actual or potential conflict of interest. By signing this form below, you are certifying that all members of the research team, including yourself, have read and understand ISU's Conflict of Interest policy as addressed by the ISU Faculty Handbook (http://www.provost.iastate.edu/faculty .) and have made all required disclosures.

☐ Yes ☒ No Do you or any member of your research team have an actual or potential conflict of interest?
☐ Yes ☐ No If yes, have the appropriate disclosure form(s) been completed?

SIGNATURES

[redacted] 5.08
Signature of Principal Investigator Date

[redacted] 2/5/08
Signature of Department Chair Date

PLEASE NOTE: Any changes to an approved protocol must be submitted to the appropriate committee(s) before the changes may be implemented.

Please proceed to SECTION II.

SECTION II: IRB SECTION - STUDY SPECIFIC INFORMATION

STUDY OBJECTIVES

Briefly explain in **language understandable to a layperson** the specific aim(s) of the study.

In the current study, we will examine the impact of body image on affective/aesthetic attitude toward products, fashion involvement, concern with fit, and loyalty to shop in online apparel shopping. Specifically, this study examines whether consumers' self-discrepancy from body ideals is affected when respondents compare themselves to apparel models on a shopping website. We will examine whether body image influences consumers' attitudes and behavioral intentions in the online shopping environment.

BENEFIT

Explain in **language understandable to a layperson** how the information gained in this study will benefit participants or the advancement of knowledge, and/or serve the good of society.

This study will provide e-retailers with information concerning how they can effectively display body-related information to aid the decision making process of consumers. It will increase understanding of the role of body image in apparel shopping. Consumers will also benefit by the improvement of website body-related information when shopping.

PART A: PROJECT INVOLVEMENT

1) ☐ Yes ☒ No Is this project part of a Training, Center, Program Project Grant?
   Director Name: Overall IRB ID:
2) ☐ Yes ☒ No Is the purpose of this project to develop survey instruments?
3) ☐ Yes ☒ No Does this project involve an investigational new drug (IND)? Number:
4) ☐ Yes ☒ No Does this project involve an investigational device exemption (IDE)? Number:
5) ☐ Yes ☒ No Does this project involve existing data or records?
6) ☐ Yes ☒ No Does this project involve secondary analysis?
7) ☐ Yes ☒ No Does this project involve pathology or diagnostic specimens?
8) ☐ Yes ☒ No Does this project require approval from another institution? Please attach letters of approval.
9) ☐ Yes ☒ No Does this project involve DEXA/CT scans or X-rays?

PART B: MEDICAL HEALTH INFORMATION OR RECORDS

1) ☐ Yes ☒ No Does your project require the use of a health care provider's records concerning past, present, or future physical, dental, or mental health information about a subject? The Health Insurance Portability and Accountability Act established the conditions under which protected health information may be used or disclosed for research purposes. If your project will involve the use of any past or present clinical information about someone, or if you will add clinical information to someone's treatment record (electronic or paper) during the study you must complete and submit the Application for Use of Protected Health Information.

PART C: ANTICIPATED ENROLLMENT

Estimated number of subjects *contacted* to reach required enrollment: 6500	
Number of subjects to be enrolled in the study Total: 600 Males: 300 Females: 300	
Check if any enrolled subjects are: ☐ Minors (Under 18) Age Range of Minors: ☐ Pregnant Women/Fetuses ☐ Cognitively Impaired ☐ Prisoners	Check below if this project involves either: ☐ Adults, non-students ☐ Minor ISU students ☒ ISU students 18 and older ☐ Other (explain)
List estimated percent of the anticipated enrollment that will be minorities *if known*:	
American Indian:	Alaskan Native:
Asian or Pacific Islander:	Black or African American:
Latino or Hispanic:	

PART D: SUBJECT SELECTION

Please use additional space as necessary to adequately answer each question.

11. Explain the procedures for selecting subjects including any inclusion/exclusion criteria (*i.e., Where will the names come from? Will a sample be purchased, will ads, fliers, word of mouth, email list, etc. be used?).*

The current study will use both a random and convenience sample; a random sample drawn from ISU students who are enrolled in Spring 2008 and a convenience sample from classes in the Department of Apparel, Educational Studies, and Hospitaltiy Management and Depatment of Psychology. The main survey will be conducted via an Internet (Online survey), using both a random sample drawn from ISU students and convenience sample from AESHM and Psychology classes. For the random sample, lists of subjects' email addresses will be provided by the Office of the Registrar. The web site link will be distributed to subjects via email. For the convenience sample, instructors of the classes will be contacted to announce the survey in their classes, and the survey announcement will be posted on the class WebCT. However, the convenience sample will be used only if we didn't aquire enough responses (600) from the random sample. However, the convenience sample will be used only if we didn't aquire enough responses (600) from the random sample.

12. Attach a copy of any recruitment telephone scripts or materials such as ad, fliers, e-mail messages, etc. Recruitment material must include a statement of the voluntary and confidential nature of the research. Do not include the amount of compensation, (e.g., compensation available).

Note: Please answer each question. If the question does not pertain to this study, please type not applicable (N/A).

PART E: RESEARCH PLAN

Include sufficient detail for IRB review of this project independent of the grant, protocol, or other documents.

13. Describe the flow of events used in this research protocol. Include information from the first contact with the volunteers to the end of the study. Use a diagram or flow chart if appropriate. Also, include a description of the study procedures or tasks that participants will be exposed to or asked to complete. This information is intended to inform the committee of the procedures used in the study and their potential risk. Please do not respond with "see attached" or "not applicable."

Random sample: A list of 6000 subjects' email addresses will be provided by the office of the registrar. The principal researcher will send emails with description of study, and a website link. If students decide to participate in this study, they will access the general instruction and questionnaires by clicking the website link. Participants will read the consent form and continue to the survey. The principal researcher will inform participants that their participation is competely voluntary and that they can quit anytime if they do not want to continue.
The participants will be also informed that their responses will not be assocaited with their personal information

such as email address or name.
Convenience sample: The principal researcher will contact the instructors of classes in the Department of Apparel, Educational Studies, and Hospitality Management and Psychology. Participants will be alerted in classes regarding the opportunity to take part in the survey. The survey website link will be posted on the class WebCT site and participants will voluntarily participate in the survey. The principal researcher will inform participants that their participation is competely voluntary and they can quit anytime if they do not want to continue.

14. For studies involving pathology/diagnostic specimens, indicate whether specimens will be collected prospectively and/or already exist "on the shelf" at the time of submission of this review form. If prospective, describe specimen procurement procedures; indicate whether any additional medical information about the subject is being gathered, and whether specimens are linked at any time by code number to the subject's identity. If this question is not applicable, please type N/A in the response cell.

N/A

15. For studies involving deception, please justify the deception and indicate the debriefing procedure, including the timing and information to be presented to subjects. If this question is not applicable, please type N/A in the response cell.

N/A

PART F: CONSENT PROCESS

16. Describe the consent process for participants who are age 18 and older. *If the consent process does not include documented consent, a waiver of documentation of consent must be requested.*

The consent form will be provided to participants in the email invitation before the website link. The principal researcher will clearly indicate that if participants do not feel comfortable to participate in the survey, they can quit anytime. Also, if they are under 18, they will be asked not to participate in the survey. If someone yourger than 18 participates, as indicated in the demographics, his or her data will be eliminated.

17. If your study involves minors, please explain how parental consent will be obtained prior to enrollment of the minor(s).

N/A

18. Please explain how assent will be obtained from minors (younger than 18 years of age), prior to their enrollment. Also, please explain if the assent process will be documented (*e.g., a simplified version of the consent form, combined with the parental informed consent document).* According to the federal regulations assent "…means a child's affirmative agreement to participate in research. Mere failure to object should not, absent affirmative agreement, be construed as assent."

N/A

PART G: DATA ANALYSIS

19. Describe how the data will be analyzed (*e.g. statistical methodology, statistical evaluation, statistical measures used to evaluate results*)

Data will be analyzed using LISREL and SPSS. Primarily quantitative data analysis methods will be used. Descriptive statistics will be used. Overall trends in students' scores, demographic information, online/online apparel shopping experiences will be analyzed using SPSS. Structural Equation Modeling (SEM) using LISREL will be performed to explain the relationships among the variables (body image, body image self-discrepancy,

affective/aesthetic attitudes, fashion involvement, concerns with fit, and loyalty intention).

20. If applicable, please indicate the anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

11/1/2008 Month/Day/Year

PART H: BENEFITS

21. Describe the benefit to the volunteer from participating in this study, *if any,* and the benefit to society that will be gained from the study. Please note that monetary compensation is not considered a benefit.

This study will benefit online retailers by providing information about the perceptions, attitudes, and behavioral intentions of consumers with various body types in the online shopping context. This study also informs online retailers about how they may effectively display body-related informaion to better assist customers. Consumers will also benefit from the improved information in online apparel shopping websites.

PART I: RISKS

The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological, emotional, legal, social or financial risk.

22. ☐ Yes ☒ No Is the ***probability*** of the harm or discomfort anticipated in the proposed research greater than that encountered ordinarily in daily life or during the performance of routine physical or psychological examinations or tests?

23. ☐ Yes ☒ No Is the ***magnitude*** of the harm or discomfort greater than that encountered ordinarily in daily life, or during the performance of routine physical or psychological examinations or tests?

24. Describe any risks or discomforts to the subjects and how they will be minimized and precautions taken. Do ***not*** respond with N/A. If you believe that there will not be risk or discomfort to subjects you must explain why.

There are no foreseeable risks from participating in this study. The principal researcher will inform participants that if they do not feel comfortable to respond, they can omit items or quit anytime. Also, the participants will be informed that their responses will not be associated with their personal information (e.g., emails and names).

25. If this study involves vulnerable populations, including minors, pregnant women, prisoners, educationally or economically disadvantaged, what additional protections will be provided to minimize risks?

This study will use a student sample. In using a random sample, because this study will be conducted through the Internet, the principal researcher will not have information regarding participants' conditions (e.g., pregnant women). However, the principal researcher will inform that the participants can discontinue anytime if they will feel any risks or discomforts.

PART J: COMPENSATION

26. ☒ Yes ☐ No Will subjects receive compensation for their participation? If yes, please explain.

Do not make the payment an inducement, only a compensation for expenses and inconvenience. If a person is to receive money or another token of appreciation for their participation, explain when it will be given and any conditions of full or partial payment. (E.g., volunteers will receive $5.00 for each of the five visits in the study or a total of $25.00 if he/she completes the study. If a participant withdraws from participation, they will receive $5.00 for each of the visits completed.) It is considered undue influence to make completion of the study the basis for compensation.

Each participant will be asked to type their email address and name at the end of the survey if they want to have a chance to win a $30 certificate. However, their name and email addresses will be automatically saved in a different file separated from their responses.
Ten participants will be randomly selected, using an EXCEL random number generation program, and be given $30.00 Target gift certificates as a compensation.

PART K: CONFIDENTIALITY

27. Describe below the methods that will be used to ensure the confidentiality of data obtained. For example,, who has access to the data, where the data will be stored, security measures for web-based surveys and computer storage, how long data (specimens) will be retained, etc.)

Information obtained will be kept strictly confidential. Participants' responses will be collected and saved separately and will not be associated with participants' email addresses and names. After selecting participants who will receive the incentives, the email addresses and names will be destroyed. The data file will be retained for five years and destroyed after completing the research. Passwords are required to access the data from the web survey.

PART L: REGISTRY PROJECTS

To be considered a registry: (1) the individuals must have a common condition or demonstrate common responses to questions; (2) the individuals in the registry might be contacted in the future; and (3) the names/data of the individuals in the registry might be used by investigators other than the one maintaining the registry.

☐ Yes ☒ No Does this project establish a registry?

If "yes," please provide the registry name below.

Checklist for Attachments

The following are attached (please check ones that are applicable):

☒ A copy of the informed consent document **OR** ☐ Letter of introduction to subjects containing the elements of consent
☐ A copy of the assent form if minors will be enrolled
☐ Letter of approval from cooperating organizations or institutions allowing you to conduct research at their facility
☒ Data-gathering instruments (including surveys)
☒ Recruitment fliers, phone scripts, or any other documents or materials the subjects will see

Two sets of materials should be submitted for each project – the original signed copy of the application form and one copy and two sets of accompanying materials. **Federal regulations require that one copy of the grant application or proposal be submitted for comparison with the application for approval.**

FOR IRB USE ONLY:

Initial action by the Institutional Review Board (IRB):

☐ Project approved. Date: exempt
☐ Pending further review. Date: _____
☐ Project not approved. Date: _____

Follow-up action by the IRB:

[redacted]
IRB Approval Signature

February 28, 2008
Date

SECTION III: ENVIRONMENTAL HEALTH AND SAFETY INFORMATION

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized), or human blood components, body fluids or tissues? If the answer is "no", please proceed to SECTION III: APPLICATION FOR IRB APPROVAL. If the answer is "yes," please proceed to Part A: Human Cell Lines.

PART A: HUMAN CELL LINES

☐ Yes ☒ No Does this project involve human cell or tissue cultures (primary OR immortalized cell lines/strains) that have been documented to be free of bloodborne pathogens? If the answer is "yes," please attach copies of the documentation. If the answer is "no," please answer question 1 below.

1) Please list the specific cell lines/strains to be used, their source and description of use.

CELL LINE	SOURCE	DESCRIPTION OF USE

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Please list the specific precautions to be followed for this project below (e.g., retractable needles used for blood draws):

Anyone working with human cell lines/strains that have not been documented to be free of bloodborne pathogens is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (http://www.ehs.iastate.edu/bs/bbp.htm).

PART B: HUMAN BLOOD COMPONENTS, BODY FLUIDS OR TISSUES

☐ Yes ☒ No Does this project involve human blood components, body fluids or tissues? If "yes", please answer all of the questions in the "Human Blood Components, Body Fluids or Tissues" section.

1) Please list the specific human substances used, their source, amount and description of use.

SUBSTANCE	SOURCE	AMOUNT	DESCRIPTION OF USE
E.g., Blood	*Normal healthy volunteers*	*2 ml*	*Approximate quantity, assays to be done.*

Add New Row

2) Please refer to the ISU "Bloodborne Pathogens Manual," which contains the requirements of the OSHA Bloodborne Pathogens Standard. Specific sections to be followed for this project are:

Anyone working with human blood components, body fluids or tissues is required to have Bloodborne Pathogen Training annually. Current Bloodborne Pathogen Training dates must be listed in Section I for all Key Personnel. Please contact Environmental Health and Safety (294-5359) if you need to sign up for training and/or to get a copy of the Bloodborne Pathogens Manual (http://www.ehs.iastate.edu/bs/bbp.htm).

FOR ENVIRONMENTAL HEALTH AND SAFETY USE ONLY

Signature of Biological Safety Officer

Date

APPENDIX O: EMAIL MESSAGE/CONSENT FORM (PHASE 3)

Email Message & Informed Consent Document

Title of the Study: Concerns with fit and size of the garment in apparel shopping

Investigators:
Hyejeong Kim: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 31 Mackay Hall Ames, IA 50011
Mary Lynn Damhorst: Iowa State University Department of Apparel, Educational Studies, and Hospitality Management 1068 LeBaron Hall Ames, IA 50011

Dear Participant:

You are invited to participate in a research project about concerns with fit and size of the garment in apparel shopping. The results will potentially provide valuable information to retailers about the types of concerns with fit and size of the garment online apparel shopping contexts.

The survey is located at the website listed below.

The survey website will be open between May 19 and May 28, 2008.

You will be compensated in this study by the opportunity to participate in a random drawing for Target, Wal-Mart, or Starbucks Coffee gift certificates ($20.00).

Your individual responses will be kept in strict confidence. Your personal information will not be associated with your response. The principal researcher will use a protected password, to access data from the web-based survey. All identifying information that you provide for a gift card will be stored separately from your response and removed immediately after drawing. Results will be published in summary form only.

There are no foreseeable risks from participating in this study. Your participation in this study is completely voluntary. If you do not feel comfortable completing the questionnaire, you are free to discontinue at any time. There is no penalty or loss to you for not completing the survey or if you begin the survey but wish to withdraw and discontinue. You can skip any questions on the survey that you do not wish to answer. By participating, you give the researchers your consent. The questionnaire will take no more than 15 minutes of your time.

You are encouraged to ask questions at any time during this study. For further information about the study contact Hyejeong Kim, e-mail address: kim2005@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Diane Ament, Research Compliance Officer, (515) 294-3115, dament@iastate.edu.

We thank you for your participation and attention.

By clicking the website link you can start the survey.

Website link: _____

APPENDIX P: PILOT TEST QUESTIONS (PHASE 3)

ONLINE SHOPPING BEHAVIOR QUESTIONS

Please list three apparel brand websites (e.g., Gap) on which you have browsed or purchased apparel items.

1._____

2._____

3._____

Please list three apparel items (e.g., sweater, jeans, t-shirt) that you have purchased through online shopping.

1._____

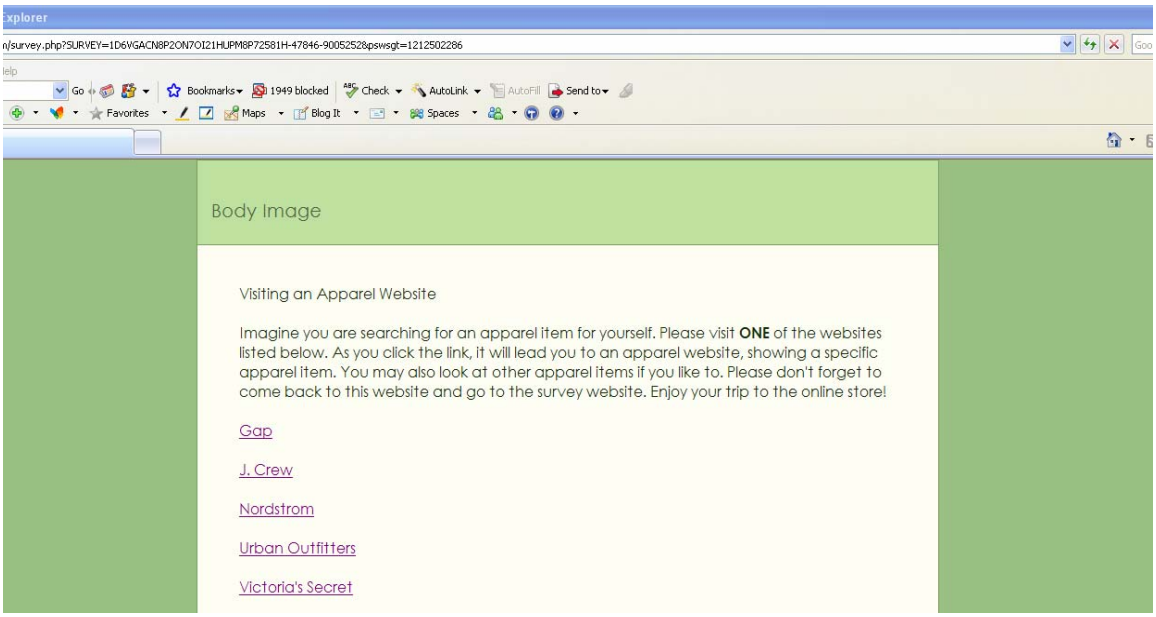
2._____

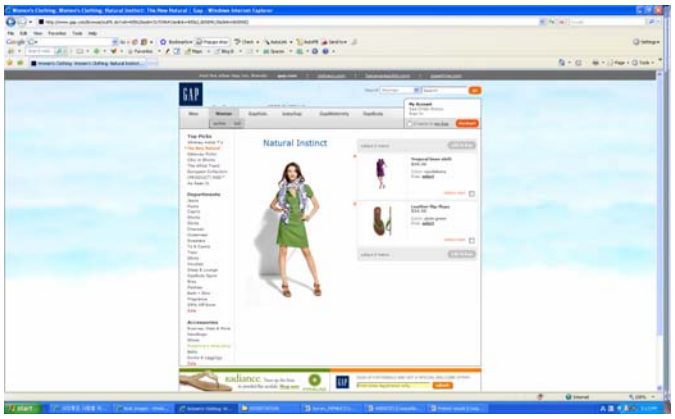
3._____

What is your gender?

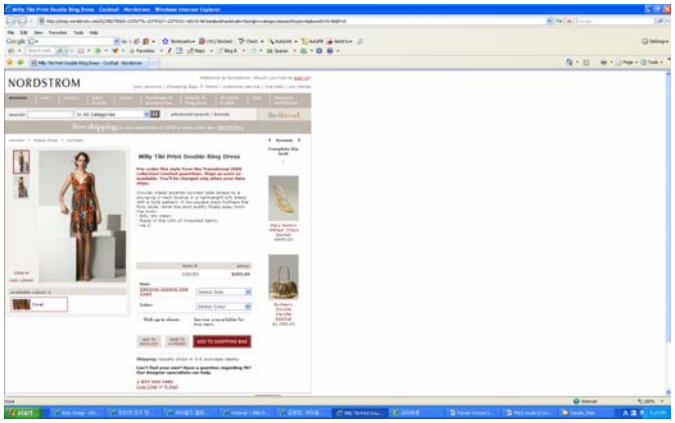
Male _____ Female _____

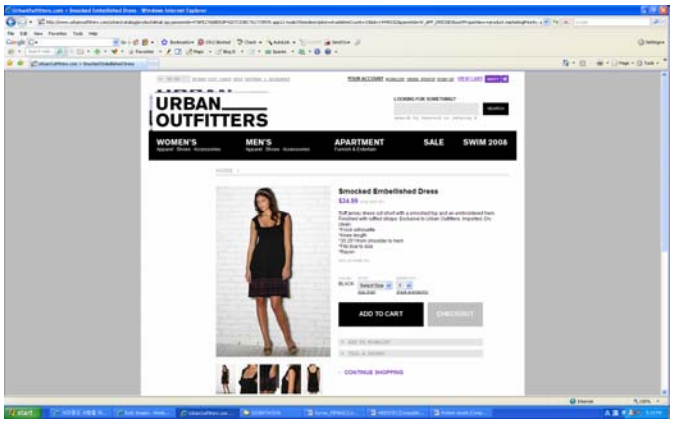
APPENDIX Q: QUESTIONNAIRE (PHASE 3)

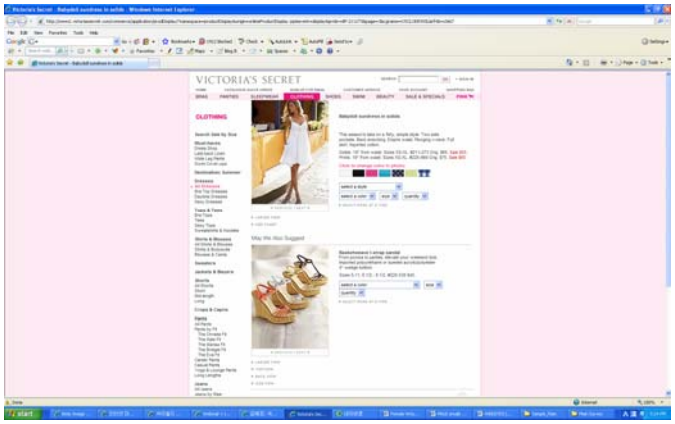

Body Image
Visiting an Apparel Website
Imagine you are searching for an apparel item for yourself. Please visit ONE of the websites listed below. As you click the link, it will lead you to an apparel website, showing a specific apparel item. You may also look at other apparel items if you like to. Please don't forget to come back to this website and go to the survey website. Enjoy your trip to the online store!
Gap
J. Crew
Nordstrom
Urban Outfitters
Victoria's Secret


GAP
Natural Instinct


J.CREW
the women's shop


NORDSTROM


URBAN OUTFITTERS
WOMEN'S
MEN'S
APARTMENT
SALE
SWIM 2008
Smocked Embellished Dress
ADD TO CART
CHECKOUT
CONTINUE SHOPPING


VICTORIA'S SECRET
CLOTHING

Please select the website you saw today.

1. www.gap.com
2. www.jcrew.com
3. www.nordstrom.com
4. www.urbanoutfitters.com
5. www.victoriassecret.com

Have you every purchased apparel item(s) at the website you saw today?

Yes _____ No _____

Please read the following statements and select the one answer that best represents your opinion.

None									Very much
1	2	3	4	5	6	7	8	9	10

	1	2	3	4	5	6	7	8	9	10
Please indicate the extent to which you are concerned about your body weight.	1	2	3	4	5	6	7	8	9	10
Please indicate the extent to which you are concerned about your overall appearance.	1	2	3	4	5	6	7	8	9	10
Please indicate the extent to which you are concerned about your overall body shape.	1	2	3	4	5	6	7	8	9	10

Please evaluate how well your body resembles or matches your personal ideals in terms of the following characteristics:

Exactly as I am	Almost as I am	Fairly unlike me	Very unlike me
-1	1	2	3

	-1	1	2	3
Height	-1	1	2	3
Skin complexion	-1	1	2	3
Hair texture and thickness	-1	1	2	3
Facial features	-1	1	2	3
Muscle tone and definition	-1	1	2	3
Body proportions	-1	1	2	3
Weight	-1	1	2	3
Chest size	-1	1	2	3
Physical strength	-1	1	2	3
Physical coordination	-1	1	2	3

Please evaluate how well your body resembles or matches the model on the website you saw today in terms of the following characteristics.

Exactly as I am	Almost as I am	Fairly unlike me	Very unlike me
-1	1	2	3

	-1	1	2	3
Height	-1	1	2	3
Skin complexion	-1	1	2	3
Hair texture and thickness	-1	1	2	3
Facial features	-1	1	2	3
Muscle tone and definition	-1	1	2	3
Body proportions	-1	1	2	3
Weight	-1	1	2	3
Chest size	-1	1	2	3
Physical strength	-1	1	2	3
Physical coordination	-1	1	2	3

Please indicate the strength or importance you place on each ideal.

Not important	Somewhat important	Moderately importance	Very important
0	2	3	4

	0	1	2	3
Height	0	1	2	3
Skin complexion	0	1	2	3
Hair texture and thickness	0	1	2	3
Facial features	0	1	2	3
Muscle tone and definition	0	1	2	3
Body proportions	0	1	2	3
Weight	0	1	2	3
Chest size	0	1	2	3
Physical strength	0	1	2	3
Physical coordination	0	1	2	3

Please read the following statements and select the one answer that best reflect your concern when shopping at <u>an online store</u>.

Strongly Disagree	----------	-----				**Strongly Agree**
1	2	3	4	5	6	7

	Level of Agreement						
	1	2	3	4	5	6	7
The garment may not look good on me.	1	2	3	4	5	6	7
The garment may not look nice on me.	1	2	3	4	5	6	7
I may feel uncomfortable in the garment.	1	2	3	4	5	6	7
The garment may not fit well.	1	2	3	4	5	6	7
The size of the garment may not fit me.	1	2	3	4	5	6	7

The fit of the garment may not be precise.	1	2	3	4	5	6	7
Depending on brands, the garment fit may be different.	1	2	3	4	5	6	7
The garment may not fit all body shapes and sizes.	1	2	3	4	5	6	7
The fit of the garment may be different from what I see on the website.	1	2	3	4	5	6	7
The garment on the website may look different when I try it on at home.	1	2	3	4	5	6	7
The garment may fit differently on me than it fits on the model.	1	2	3	4	5	6	7
The garment may reveal the parts of my body, such as stomach or muffin top, that I want to hide.	1	2	3	4	5	6	7
The garment may not give other people a positive impression about me.	1	2	3	4	5	6	7
The garment may not give other people a right impression about me.	1	2	3	4	5	6	7
I may look weird in the garment.	1	2	3	4	5	6	7
The garment may be too revealing.	1	2	3	4	5	6	7
I may not project the self-image that I want to show other people when wearing the garment.	1	2	3	4	5	6	7
I may not find the exact size I am looking for in the website.	1	2	3	4	5	6	7
The website may not carry my size.	1	2	3	4	5	6	7
My body may not fit the garments selling in the website.	1	2	3	4	5	6	7
I may not find a garment that fits my body.	1	2	3	4	5	6	7
The garment may not fit right.	1	2	3	4	5	6	7
Shopping in the website, I may have a hard time picturing myself wearing the garment.	1	2	3	4	5	6	7
I may have a hard time imagining the fit of the garment shopping in the website.	1	2	3	4	5	6	7
My guess about the garment fit may not be correct when shopping in the website.	1	2	3	4	5	6	7
I may not find my size in the website.	1	2	3	4	5	6	7
The garment may not fit perfectly.	1	2	3	4	5	6	7

Please read the following statements and select the <u>one answer</u> that best represents your opinion.

Strongly Disagree						**Strongly Agree**
1	2	3	4	5	6	7

	Level of Agreement						
	1	2	3	4	5	6	7
Because of my personality, I would rate apparel as being of the highest importance to me personally.	1	2	3	4	5	6	7

I could make many connections or associations between important experiences in my life and apparel.	1	2	3	4	5	6	7
In general, apparel would allow others to see me as I would ideally like them to see me.	1	2	3	4	5	6	7
When purchasing the apparel item on this occasion, I would have a high level of interest in the purchase process.	1	2	3	4	5	6	7
On this particular occasion, I would put a lot of effort into the purchase of the apparel item.	1	2	3	4	5	6	7
When purchasing the apparel item on this website, I would make a lot of effort to purchase the apparel item.	1	2	3	4	5	6	7
The apparel items I just viewed on the website are attractive.	1	2	3	4	5	6	7
The apparel items I just viewed on the website are desirable.	1	2	3	4	5	6	7
The apparel items I just viewed on the website are likable.	1	2	3	4	5	6	7

Very Unlikely	----------		-----			**Very Likely**
1	2	3	4	5	6	7

	Level of Likelihood						
	1	2	3	4	5	6	7
How likely is it that in the upcoming year you would shop for apparel from the websites that you saw today?	1	2	3	4	5	6	7
How likely is it that within the next 12 months you would buy the apparel item from the websites that you saw today?	1	2	3	4	5	6	7
How likely is it that you would actively seek out clothing items from the websites that you saw today in order to purchase an item?	1	2	3	4	5	6	7
How likely is it that you would buy clothing items from the websites?	1	2	3	4	5	6	7
How likely is it that you would buy apparel from the websites that you saw today if you found something you like?	1	2	3	4	5	6	7
How likely is it that you would revisit the website that you visited today when you need to purchase other apparel item?	1	2	3	4	5	6	7
How likely is it that you would return to the website that you visited today?	1	2	3	4	5	6	7

Please answer the following questions.

Are you male? _____ female? _____

What is your age? _____

What is your school major? _____

What year are you in?

Freshman _____
Sophomore _____
Junior _____
Senior _____
Graduate _____

What is your ethnic background?

African American _____
Caucasian/White American _____
Latino/Hispanic American _____
Native American _____
Asian American _____
Other (please specify) _____

What is your height? _____ feet _____ inches

What is your weight? _____ lbs

Have you ever purchased apparel online? Yes _____ No _____

In a typical month, how often do you purchase clothing online?

None _____
1-2 times _____
3-4 times _____
5-6 times _____
7-8 times _____
9-10 times _____

How much money did you spend for online clothing purchases over the past 30 days?

0-$75 _____
$76-150 _____
$151-225 _____
$226-300 _____
$301-375 _____
$376-450 _____
$451-525 _____
$526-600 _____
More than $600 _____

Thank you so much for completing the questionnaire.

APPENDIX R: DESCRIPTIVE STATISTICS (PHASE 3)

Table R.1. Descriptive Statistics of Items (Phase 3)

						Skewness			*Kurtosis*		
Item[a]	*n*	*Min*	*Max*	*M*	*SD*	*Stat*	*SE*	*c.r.*	*Stat*	*SE*	*c.r.*
BISD 1	348	-4	12.00	2.24	3.12	0.76	0.13	5.84	0.42	0.26	1.61
BISD 2	348	-4	12.00	4.18	3.51	0.24	0.13	1.81	0.11	0.26	0.42
BISD 3	348	-4	12.00	3.30	3.06	0.28	0.13	2.14	0.10	0.26	0.37
BISD 4	348	-4	12.00	5.09	3.13	0.10	0.13	0.79	0.52	0.26	1.99
BISD 5	348	-4	12.00	5.13	3.15	0.20	0.13	1.55	0.14	0.26	0.54
BISD 6	348	-4	12.00	5.95	3.43	-0.12	0.13	-0.95	-0.04	0.26	-0.17
BISD 7	348	-4	12.00	6.42	3.75	-0.18	0.13	-1.41	-0.35	0.26	-1.33
BISD 8	348	-4	12.00	3.44	3.50	0.46	0.13	3.56	-0.18	0.26	-0.69
BISD 9	348	-4	12.00	3.62	2.96	0.43	0.13	3.32	0.62	0.26	2.37
BISD 10	348	-4	12.00	3.27	3.16	0.54	0.13	4.12	0.81	0.26	3.12
BDS1	348	1	10	6.18	2.55	-0.31	0.13	-2.37	-0.81	0.26	-3.10
BDS2	348	1	10	6.33	2.16	-0.30	0.13	-2.31	-0.58	0.26	-2.23
BDS3	348	1	10	6.17	2.29	-0.21	0.13	-1.59	-0.77	0.26	-2.95
CFSG1	348	1	7	5.66	1.48	-1.21	0.13	-9.29	1.08	0.26	4.16
CFSG2	348	1	7	5.47	1.52	-1.04	0.13	-8.01	0.58	0.26	2.24
CFSG3	348	1	7	4.98	1.74	-0.60	0.13	-4.62	-0.57	0.26	-2.18
CFSG4	348	1	7	5.82	1.26	-1.15	0.13	-8.82	1.26	0.26	4.85
CFSG5	348	1	7	5.58	1.40	-1.00	0.13	-7.70	0.62	0.26	2.40
CFSG6	348	1	7	5.85	1.17	-0.97	0.13	-7.47	0.64	0.26	2.45
CFSG7	348	1	7	5.73	1.52	-1.31	0.13	-10.07	1.16	0.26	4.47
CFSG8	348	1	7	5.63	1.34	-0.80	0.13	-6.12	0.14	0.26	0.55
CFSG9	348	1	7	5.85	1.26	-1.13	0.13	-8.68	1.06	0.26	4.06
CFSG10	348	1	7	6.10	1.23	-1.63	0.13	-12.56	2.80	0.26	10.76
CFSG11	348	1	7	4.80	1.91	-0.49	0.13	-3.77	-0.86	0.26	-3.31
CFSG12	348	1	7	4.05	1.83	-0.01	0.13	-0.10	-0.91	0.26	-3.51
CFSG13	348	1	7	3.67	1.87	0.24	0.13	1.85	-0.93	0.26	-3.58
CFSG14	348	1	7	4.40	1.77	-0.29	0.13	-2.23	-0.81	0.26	-3.13
CFSG15	348	1	7	4.03	1.74	0.04	0.13	0.32	-0.89	0.26	-3.42
CFSG16	348			3.68	1.78	.223	.131	1.70	-.826	.260	-3.18
CFSG17	348	1	7	4.89	1.74	-0.67	0.13	-5.18	-0.30	0.26	-1.13
CFSG18	348	1	7	4.89	1.73	-0.66	0.13	-5.11	-0.32	0.26	-1.24
CFSG19	348	1	7	3.81	2.18	0.14	0.13	1.09	-1.42	0.26	-5.46
CFSG20	348	1	7	4.37	1.94	-0.26	0.13	-1.99	-1.04	0.26	-3.98
CFSG21	348	1	7	4.33	1.87	-0.23	0.13	-1.74	-0.93	0.26	-3.56
CFSG22	348	1	7	4.78	1.70	-0.45	0.13	-3.43	-0.62	0.26	-2.40
CFSG23	348	1	7	5.17	1.52	-0.69	0.13	-5.31	-0.10	0.26	-0.37
EFAIN 1	348	1	7	3.47	1.58	-0.03	0.13	-0.24	-0.96	0.26	-3.70
EFAIN 2	348	1	7	3.34	1.65	0.20	0.13	1.53	-0.92	0.26	-3.53
EFAIN 3	348	1	7	4.06	1.58	-0.20	0.13	-1.53	-0.67	0.26	-2.57
SFAIN 4	348	1	7	3.87	1.68	0.02	0.13	0.15	-0.74	0.26	-2.84
SFAIN 5	348	1	7	3.51	1.74	0.21	0.13	1.63	-0.86	0.26	-3.30
SFAIN 6	348	1	7	3.26	1.63	0.37	0.13	2.82	-0.57	0.26	-2.19
LOYAL1	348	1	7	4.07	2.28	-0.05	0.13	-0.40	-1.48	0.26	-5.70
LOYAL2	348	1	7	3.25	2.15	0.48	0.13	3.69	-1.14	0.26	-4.38
LOYAL3	348	1	7	3.63	2.05	0.20	0.13	1.50	-1.21	0.26	-4.65
LOYAL4	348	1	7	3.74	2.15	0.14	0.13	1.08	-1.34	0.26	-5.17
LOYAL5	348	1	7	4.40	1.96	-0.29	0.13	-2.21	-0.97	0.26	-3.75
LOYAL6	348	1	7	4.06	2.04	-0.07	0.13	-0.50	-1.23	0.26	-4.73
LOYAL7	348	1	7	4.54	2.16	-0.29	0.13	-2.18	-1.28	0.26	-4.92

Note. Min = Minimum, *Max* = Maximum, *Stat* = Statistic, *SE* = Standard error, *c.r.* = critical ratio

a BISD (body image self-discrepancy) = -1 for 'exactly as I am', 1 for 'almost as I am', 2 for 'fairly unlike me', and 3 for 'very unlike me'; BDS (body dissatisfaction) = 1 for 'none' and 10 for 'very much'; FAIN (fashion involvement) = 1 for 'strongly disagree' and 7 for 'strongly agree', CFSG (concerns with fit and size of the garment),; LOYAL (loyalty intentions) = 1 for 'very unlikely' and 7 for 'very likely'

APPENDIX S: CORRELATIONS AMONG 47 ITEMS (PHASE 3)

Table S.1. Correlation Coefficients between Items (Phase 3)

	Item[a]	1	2	3	4	5	6	7	8
1	BISD2	1							
2	BISD3	.454	1						
3	BISD4	.432	.467	1					
4	BISD5	.225	.266	.366	1				
5	BISD6	.170	.183	.316	.555	1			
6	BISD7	.195	.145	.267	.528	.638	1		
7	BISD8	.155	.211	.250	.279	.439	.324	1	
8	BISD9	.119	.241	.213	.469	.359	.362	.284	1
9	BISD10	.111	.221	.270	.338	.333	.314	.258	.660
10	BDS1	.081*	.105*	.099*	.300	.317	.532	.157	.186
11	BDS2	.188	.154	.167	.167	.183	.207	.118	.070*
12	BDS3	.109	.137	.188	.247	.280	.292	.187	.154
13	EFAIN1	.103*	.085*	.148	.183	.188	.176	.142	.197
14	EFAIN2	.091*	.103*	.006*	.177	.199	.140	.132	.140
15	EFAIN3	.012*	.029*	.032*	.146	.135	.069*	.052*	.101*
16	SFAIN4	.022*	.022*	.105*	.111	.129	.085*	.066*	.074*
17	SFAIN5	-.051*	.076*	.086*	.090*	.093*	.139	.022*	.099*
18	FAIN6	.019*	.049*	.020*	.086*	.090*	.135	.119	.054*
19	CFSG1	.044*	.128	.090*	.124	.140	.066*	.069*	.104*
20	CFSG2	.076*	.113	.027*	.091*	.176	.129	.106	.128
21	CFSG3	.037*	.041*	.110	.136	.192	.211	.072*	.080*
22	CFSG4	.170	.164	.109	.249	.313	.349	.229	.140
23	CFSG5	.104*	.129	.092*	.149	.239	.222	.238	.194
24	CFSG6	.113	.114	.054*	.117	.169	.118	.171	.093*
25	CFSG7	.123	.133	.141	.161	.201	.150	.184	.136
26	CFSG8	.058*	.098*	.093*	.187	.149	.073*	.161	.169
27	CFSG9	.119	195	.094*	.212	.171	.099*	.189	.200
28	CFSG10	.068*	.142	.151	.124	.109	.094*	.050*	.135
29	CFSG11	.056*	.111	.132	.070*	.093*	.076*	.125	.110
30	CFSG12	.054*	.102*	.164	.188	.221	.188	.202*	.192
31	CFSG13	.096*	.129	.161	.145	.174	.117	.215	.143
32	CFSG14	.102*	.083*	.111	.135	.151	.144	.188	.140
33	CFSG15	.065*	.067*	.162	.149	.151	.169	.241	.175
34	CFSG16	.085*	.081*	.141	.151	.063*	.062*	.102*	.128
35	CFSG17	.124	.127	.088*	.043*	.054*	.071*	.100*	-.072*
36	CFSG18	.017*	.073*	.043*	-.016*	.038*	.106	.076*	-.011*
37	CFSG19	.116	.180	.151	.114	.168	.212	.142	.025*
38	CFSG20	.027*	-.020*	.072*	-.072*	-.019*	-.041	-.063*	.063*
39	CFSG21	.015*	-.016*	.059*	-.048*	.005*	-.032	-.005*	-.114
40	CFSG22	-.027*	.019*	.034*	-.033*	.048*	-.008	.034*	-.087*
41	LOYAL1	-.020*	-.084*	-.045*	-.082*	-.062*	-.061	-.059*	-.186
42	LOYAL2	-.043*	-.033*	-.007*	-.118	-.039*	-.053	.004*	-.141
43	LOYAL3	-.016*	-.017*	-.017*	-.141	-.110	-.078	.072*	-.170
44	LOYAL4	-.031*	-.063*	-.038*	-.135	-.134	-.115	-.093*	-.220
45	LOYAL5	-.024*	-.097*	-.053*	-.102*	-.070*	-.058	-.057*	-.171
46	LOYAL6	-.035*	-.077*	-.061*	-.139	-.103*	-.085	-.080*	-.210
47	LOYAL7	-.011*	-.101*	-.077*	-.105*	-.104*	-.075	-.063*	-.177

Note. All correlation coefficients were significant with a p-value $< .05$ except for those marked with an asterisk (*).

a BISD (body image self-discrepancy) = -1 for 'exactly as I am', 1 for 'almost as I am', 2 for 'fairly unlike me', and 3 for 'very unlike me'; BDS (body dissatisfaction) = 1 for 'none' and 10 for 'very much'; FAIN (fashion involvement) = 1 for 'strongly disagree' and 7 for 'strongly agree', CFSG (concerns with fit and size of the garment); LOYAL (loyalty intentions) = 1 for 'very unlikely' and 7 for 'very likely'

* $p > .05$

Table S.1. (continued)

	Item[a]	9	10	11	12	13	14	15	16
1	BISD2								
2	BISD3								
3	BISD4								
4	BISD5								
5	BISD6								
6	BISD7								
7	BISD8								
8	BISD9								
9	BISD10	1							
10	BDS1	.127	1						
11	BDS2	.085*	.600	1					
12	BDS3	.158	.711	.773	1				
13	EFAIN1	.183	.221	.135	.173	1			
14	EFAIN2	.110	.163	.037*	.107	.509	1		
15	EFAIN3	.098*	.162	.075*	.081*	.687	.570	1	
16	SFAIN4	.136	.147	.061*	.078*	.583	.493	.741	1
17	SFAIN5	.072*	.207	.174	.204	.322	.200	.298	.316
18	FAIN6	.034*	.116	-.028*	.059*	.276	.319	.228	.274
19	CFSG1	.104*	.127	.100*	.145	.314	.325	.349	.396
20	CFSG2	.144	.160	.111	.167	.360	.275	.330	.304
21	CFSG3	.137	.184	.121	.142	.383	.207	.259	.291
22	CFSG4	.120	.333	.222	.269	.391	.466	.337	.319
23	CFSG5	.144	.261	.184	.246	.436	.483	.351	.326
24	CFSG6	.114	.223	.192	.202	.302	.367	.256	.291
25	CFSG7	.170	.214	.138	.214	.451	.500	.395	.390
26	CFSG8	.160	.110	.077*	.156	.234	.386	.262	.267
27	CFSG9	.147	.169	.195	.213	.337	.431	.301	.305
28	CFSG10	.198	.102*	.054*	.090*	.241	.291	.274	.373
29	CFSG11	.173	.183	.129	.144	.188	.215	.228	.276
30	CFSG12	.263	.217	.099*	.142	.321	.288	.316	.324
31	CFSG13	.249	.169	.059*	.095*	.349	.290	.320	.336
32	CFSG14	.141	.193	.110	.152	.380	.329	.254	.239
33	CFSG15	.202	.145	.055*	.099	.399	.295	.319	.305
34	CFSG16	.101*	.063*	.019*	.062	.368	.360	.413	.380
35	CFSG17	-.002*	.152	.284	.226	-.060*	-.056*	-.081*	-.024*
36	CFSG18	-.034*	.162	.264	.241	.006*	-.119	-.108	-.080*
37	CFSG19	.001*	.219	.272	.212	.021*	-.011*	-.025*	.002*
38	CFSG20	-.159	.010*	.079*	.045*	-.031*	-.049*	-.023*	-.005*
39	CFSG21	-.114	.058*	.141	.142	-.033*	-.049*	-.027*	-.035*
40	CFSG22	-.095*	.035*	.135	.104*	-.057*	-.082*	-.072*	-.071*
41	LOYAL1	-.212	.044*	.108	.064*	-.208	-.247	-.185*	-.198
42	LOYAL2	-.135	-.004*	.096*	.050*	-.196	-.208	-.191*	-.176
43	LOYAL3	-.108	.027*	.097*	.061*	-.014	-.201	-.158*	-.144
44	LOYAL4	-.226	.018*	.115	.061*	-.218	-.259	-.203*	-.200
45	LOYAL5	-.207	.007*	.093*	.035*	-.168	-.243	-.174*	-.164
46	LOYAL6	-.236	.016*	.107	.043*	-.197	-.248	-.217*	-.216
47	LOYAL7	-.240	.032*	.062*	.031*	-.143	-.191	-.122*	-.136

Table S.1. (continued)

	Item[a]	17	18	19	20	21	22	23	24
1	BISD2								
2	BISD3								
3	BISD4								
4	BISD5								
5	BISD6								
6	BISD7								
7	BISD8								
8	BISD9								
9	BISD10								
10	BDS1								
11	BDS2								
12	BDS3								
13	EFAIN1								
14	EFAIN2								
15	EFAIN3								
16	SFAIN4								
17	SFAIN5	1							
18	SFAIN6	.474	1						
19	CFSG1	.356	.415	1					
20	CFSG2	.353	.375	.574	1				
21	CFSG3	.416	.526	.447	.486	1			
22	CFSG4	.140	.258	.210	.254	.278	1		
23	CFSG5	.171	.278	.273	.263	.212	.634	1	
24	CFSG6	.150	.190	.216	.184	.173	.481	.690	1
25	CFSG7	.177	.233	.272	.278	.248	.501	.598	.624
26	CFSG8	.125	.165	.155	.085	.150	.474	.526	.567
27	CFSG9	.131	.188	.244	.200	.151	.446	.617	.706
28	CFSG10	.198	.219	.211	.184	.176	.219	.256	.263
29	CFSG11	.149	.144	.155	.084*	.059*	.229	.306	.292
30	CFSG12	.225	.272	.245	.192	.223	.298	.288	.247
31	CFSG13	.220	.304	.273	.242	.226	.315	.286	.275
32	CFSG14	.227	.209	.223	.486	.261	.294	.387	.348
33	CFSG15	.346	.287	.266	.305	.321	.295	.341	.334
34	CFSG16	.328	.259	.336	.256	.291	.277	.358	.284
35	CFSG17	.078*	-.029*	-.024*	.021*	.006*	.064*	.079*	.099*
36	CFSG18	.071*	-.035*	-.043*	-.007*	.031*	.050*	.035*	.030*
37	CFSG19	.152	.094*	.079*	.075*	.102*	.131*	.096*	.092*
38	CFSG20	.082*	.033*	.019*	.047*	.040*	.015*	-.001*	.041*
39	CFSG21	.074*	.050*	.082*	.079*	.029*	.047*	-.019*	.063*
40	CFSG22	.056*	.036*	.059*	.059*	.021*	.019*	-.042*	.027*
41	LOYAL1	-.108	-.098*	-.162	-.107	-.137	-.115	-.171	-.118
42	LOYAL2	-.057*	-.127*	-.141	-.077*	-.122	-.127	-.135	-.113
43	LOYAL3	-.017*	-.061*	-.081*	-.033*	-.052*	-.127	-.190	-.121
44	LOYAL4	-.082*	-.085*	-.165	-.121	-.106	-.175	-.193	-.140
45	LOYAL5	-.069*	-.065*	-.213	-.098*	-.132	-.177	-.204	-.158
46	LOYAL6	-.057*	-.080*	-.184	-.106	-.085*	-.151	-.211	-.144
47	LOYAL7	-.044*	-.063*	-.166	-.070*	-.079*	-.104	-.201	-.117

Table S.1. (continued)

	Item[a]	25	26	27	28	29	30	31	32
1	BISD2								
2	BISD3								
3	BISD4								
4	BISD5								
5	BISD6								
6	BISD7								
7	BISD8								
8	BISD9								
9	BISD10								
10	BDS1								
11	BDS2								
12	BDS3								
13	EFAIN1								
14	EFAIN2								
15	EFAIN3								
16	SFAIN4								
17	SFAIN5								
18	SFAIN6								
19	CFSG1								
20	CFSG2								
21	CFSG3								
22	CFSG4								
23	CFSG5								
24	CFSG6								
25	CFSG7	1							
26	CFSG8	.589	1						
27	CFSG9	.604	.653	1					
28	CFSG10	.385	.285	.358	1				
29	CFSG11	.290	.321	.316	.614	1			
30	CFSG12	.317	.279	.331	.548	.673	1		
31	CFSG13	.362	.285	.298	.555	.604	.839	1	
32	CFSG14	.401	.329	.363	.228	.282	.398	.373	1
33	CFSG15	.436	.262	.328	.265	.236	.387	.427	.716
34	CFSG16	.381	.301	.362	.324	.237	.329	.354	.476
35	CFSG17	.018*	-.027*	.141	.014*	.031*	-.071*	-.038*	-.023*
36	CFSG18	-.024*	-.030*	.097*	-.034*	-.036*	-.077*	-.075*	-.032*
37	CFSG19	.058*	-.039*	.142	.083*	.056*	.017*	.036*	-.011*
38	CFSG20	.050*	.082*	.058*	.034*	-.013*	-.080*	-.067*	-.047*
39	CFSG21	.063*	.059*	.099*	-.026*	-.022*	-.054*	-.035*	-.056*
40	CFSG22	-.002*	.052*	.075*	-.088*	-.055*	-.083*	-.082*	-.091*
41	LOYAL1	-.195	-.152	-.165	-.200	-.141	-.187	-.220	-.200
42	LOYAL2	-.187	-.138	-.126	-.221	-.172	-.184	-.226	-.158
43	LOYAL3	-.121	-.177	-.187	-.157	-.158	-.210	-.214	-.190
44	LOYAL4	-.201	-.175	-.165	-.195	-.130	-.207	-.254	-.193
45	LOYAL5	-.175	-.171	-.119	-.187	-.126	-.170	-.218	-.194
46	LOYAL6	-.220	-.188	-.149	-.235	-.162	-.218	-.258	-.240
47	LOYAL7	-.143	-.176	-.159	-.186	-.187	-.213	-.207	-.235

Table S.1. (continued)

	Item[a]	33	34	35	36	37	38	39	40
33	CFSG15	1							
34	CFSG16	.625	1						
35	CFSG17	-.098*	-.147	1					
36	CFSG18	-.110	-.118	.614	1				
37	CFSG19	-.030*	-.065*	.595	.608	1			
38	CFSG20	-.038*	-.041*	.283	.314	.220	1		
39	CFSG21	-.052*	-.064*	.350	.381	.263	.688	1	
40	CFSG22	-.085*	-.135	.382	.384	.283	.652	.815	1
41	LOYAL1	-.305	-.252	.332	.283	.279	.360	.378	.448
42	LOYAL2	-.247	-.236	.350	.292	.231	.334	.378	.461
43	LOYAL3	-.250	-.203	.283	.225	.217	.306	.378	.434
44	LOYAL4	-.303	-.271	.324	.250	.232	.338	.336	.426
45	LOYAL5	-.301	-.231	.263	.225	.227	.288	.330	.406
46	LOYAL6	-.306	-.258	.303	.274	.263	.304	.347	.454
47	LOYAL7	-.268	-.175	.232	.252	.220	.319	.338	.388

	Item[a]	41	42	43	44	45	46	47
33	CFSG15							
34	CFSG16							
35	CFSG17							
36	CFSG18							
37	CFSG19							
38	CFSG20							
39	CFSG21							
40	CFSG22							
41	LOYAL1	1						
42	LOYAL2	.770	1					
43	LOYAL3	.766	.728	1				
44	LOYAL4	.853	.710	.771	1			
45	LOYAL5	.749	.602	.648	.775	1		
46	LOYAL6	.859	.692	.771	.863	.800	1	
47	LOYAL7	.813	.637	.718	.760	.695	.833	1